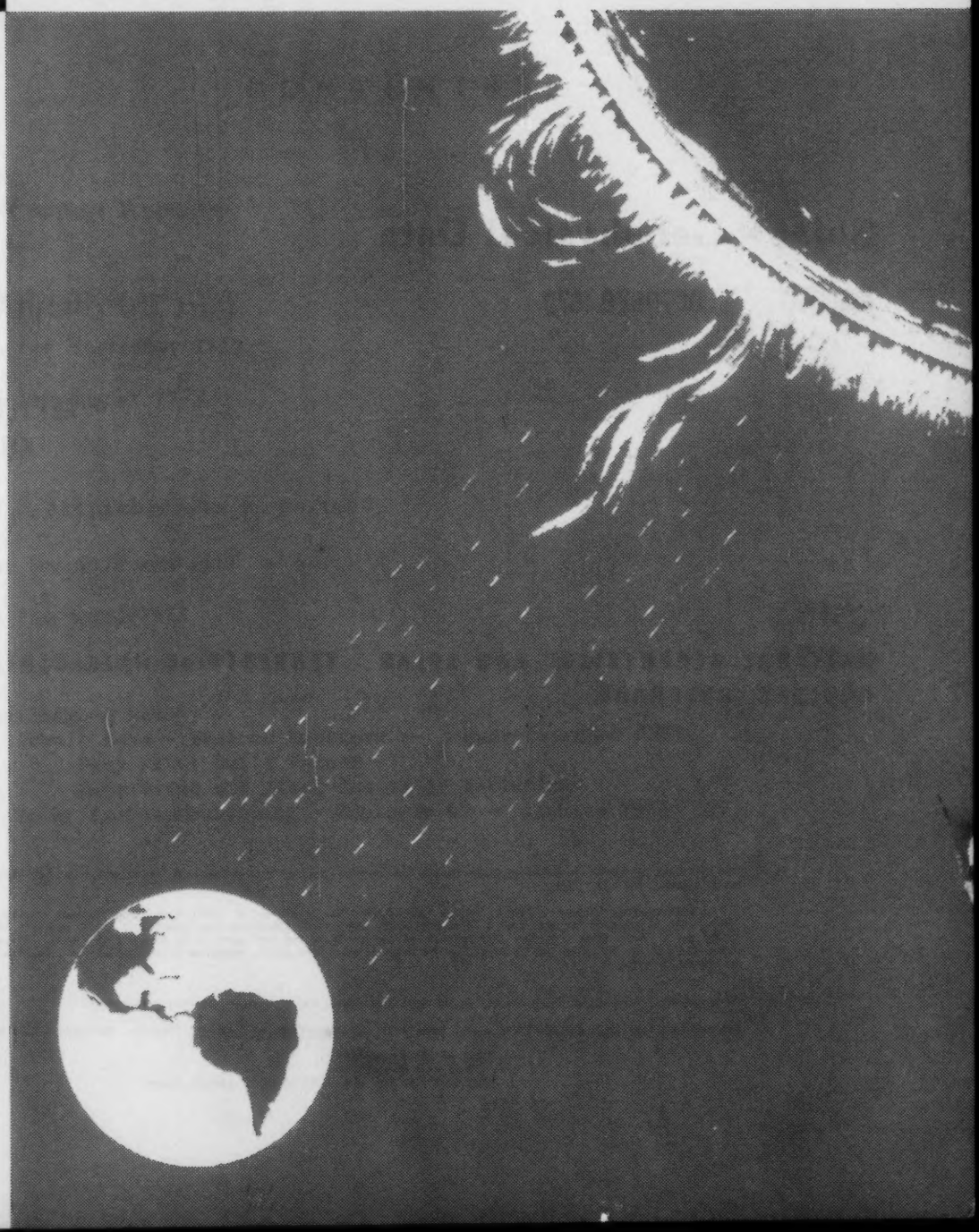
A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

SOLAR-GEOPHYSICAL DATA
(prompt reports)

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service



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NUMBER 350-PART I
DATA FOR
SEPTEMBER 1973
AUGUST 1973

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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ENVIRONMENTAL DATA SERVICE
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Solar - Geophysical Data

NO. 350 OCTOBER 1973

Part I (Prompt Reports)

DATA FOR
SEPTEMBER 1973
AUGUST 1973

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR - GEOPHYSICAL DATA

No. 350

Issued in two parts

Hope I. Leighton, Editor

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Solar - Terrestrial Data Services Division

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SEPTEMBER 1973 DATA

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SEPTEMBER 1973

	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT	
			NO.	TYPE INCLUDING FLARE ACTIVITY EXPECTED
01	0400		01602	MAGSTORM ENDS 29/13XX SOLNIL N14E68 ERUPTIVE SIX QUIET
02	0400			SOLNIL N13E58 N06W32 ERUPTIVE NINE QUIET
03	0400		03603	SOLALERT S17E44 S08W10 ERUPTIVE EIGHT QUIET
04	0400			SOLNIL N14E28 N22W09 ERUPTIVE SEVEN QUIET
05	0400		05604	SOLALERT N14E17 S14W13 ERUPTIVE SIX QUIET
06	0400		06605	SOLALERT N14E03 S15W25 ERUPTIVE FIVE QUIET
			06606	MAGALERT 06/08
07	0400		07607	SOLALERT S15W39 N14W10 S12E18 ERUPTIVE FOUR QUIET
			07608	MAGALERT 07/08
	1155	NERA TENFLARE IN PROGRESS START 07/1154Z		
	1230	DARMSTADT SOFLARE 3B FLARE AT S16W46		
	1500	BOULDER PROTON EVENT 07/1233Z MAGNITUDE UNCERTAIN DUE TO LACK OF ATS-1 DATA. APPARENTLY 2-3 TIMES BACKGROUND AT GREATER THAN 25 MEV		
08	0400		08609	MAGALERT 08/12 MINOR
			08610	SOLALERT S14W52 S12E05 ERUPTIVE THREE QUIET
09	0400		09611	MAGALERT 10/12 MINOR S12W09 ERUPTIVE FOUR QUIET
	1025	BOULDER MAGSTORM BEGINS SUDDEN COMMENCEMENT AT 09/0907Z K-5 AT 09/1025Z		
10	0400		10612	MAGALERT 11/13 S13W23 S10W39 ERUPTIVE FOUR QUIET
11	0400		11613	MAGALERT 12/13 S09W52 ERUPTIVE TWO QUIET
12	0400		12614	MAGNIL S10W48 S09W67 ERUPTIVE ONE QUIET
13	0400			SOLNIL TWO QUIET
14	0400			SOLNIL TWO QUIET
15	0400			SOLNIL ONE QUIET
16	0400			SOLNIL TWO QUIET
17	0400		17615	MAGALERT 18/25 MINOR RECURRENCE THREE QUIET
18	0400		18616	MAGALERT 19/25 TWO QUIET
19	0400		19617	MAGALERT 20/25 ONE QUIET
20	0400		20618	MAGALERT 20/25 TWO QUIET
21	0400		21619	MAGALERT 21/25 FOUR QUIET
22	0400		22620	MAGALERT 23/25 MINOR RECURRENCE FOUR QUIET
23	0400		23621	MAGALERT 24/25 FOUR QUIET
	1105	BOULDER RECURRENT MINOR MAGSTORM IN PROGRESS 23/1105Z DISTURBANCE EXPECTED TO CONTINUE 48-72 HOURS MINOR		
24	0400		24622	MINOR MAGSTORM BEGINS GRADUALLY AT ABOUT 23/0100Z
				N05E28 ERUPTIVE THREE QUIET
25	0400		25623	MAGSTORM MINOR N14E21 N21E76 ERUPTIVE SIX QUIET
26	0400			SOLNIL N14E09 ERUPTIVE EIGHT QUIET
27	0400			SOLNIL N15W04 S14E78 ERUPTIVE NINE QUIET
28	0400		28624	MAGSTORM MINOR ENDS 26/1700Z SOLNIL N14W18 ERUPTIVE SEVEN QUIET
29	0400			SOLNIL SEVEN QUIET
30	0400			SOLNIL N15W45 ERUPTIVE SIX QUIET

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1972 FINAL			1973 PROVISIONAL								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	75	40	45	7	40	65	24	8	26	36	89
2	65	67	31	53	17	38	79	46	8	25	28	129
3	73	49	28	55	22	35	93	64	16	29	21	135
4	73	30	24	60	21	32	93	77	14	24	28	127
5	67	23	21	72	41	22	75	92	7	32	34	108
6	57	19	18	83	32	32	75	68	16	44	40	84
7	54	8	24	66	34	38	76	82	37	46	42	77
8	52	7	29	60	53	50	71	52	34	44	40	72
9	34	14	42	70	60	53	68	38	28	34	38	75
10	30	12	53	55	61	67	65	25	35	30	27	62
11	34	30	61	52	59	69	62	26	60	23	23	42
12	23	33	64	32	80	92	46	18	58	14	0	27
13	15	30	67	35	83	79	41	7	52	15	0	9
14	8	27	69	15	85	78	37	7	51	9	0	0
15	14	21	71	10	74	73	35	25	46	16	0	8
16	34	25	66	11	54	64	29	33	41	9	0	33
17	30	32	71	27	36	52	16	34	34	22	0	20
18	28	28	58	42	28	44	15	41	18	36	7	16
19	44	42	49	47	18	34	32	42	38	23	7	8
20	60	58	54	60	30	23	42	32	46	8	7	30
21	69	65	67	62	31	20	45	52	75	8	15	39
22	78	69	59	62	25	30	67	53	61	14	10	48
23	65	79	57	60	33	37	72	47	48	0	17	58
24	94	77	48	50	38	29	73	57	48	9	22	63
25	135	65	43	39	48	27	67	64	47	14	28	82
26	111	57	39	27	37	23	67	46	43	8	38	82
27	118	55	34	8	36	32	67	51	38	9	37	83
28	134	61	26	14	36	43	60	32	39	10	47	80
29	89	47	25	7		46	54	23	51	17	56	75
30	98	43	29	16		50	42	21	33	11	64	71
31	93		37	13		56		17		22	82	
MEAN	61.3	41.6	45.3	42.2	42.1	45.4	57.6	41.5	37.6	20.4	25.6	60.8

1972 yearly mean = 68.9

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1972			1973								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114.7*	129.9	91.1	93.9	88.6	99.5	115.0	111.9*	85.2	90.9	78.2	103.4
2	108.4*	121.8*	89.4	98.2	88.6	101.6*	118.1*	115.0*	83.1	93.1	78.1	116.3*
3	107.3	113.9	85.2	105.1*	93.1	97.8*	129.4	117.3	81.5	93.5	76.5	122.9
4	103.3	115.8	82.3	109.3*	94.1*	96.6	122.3	115.9*	81.8	94.9	77.6	121.5*
5	100.6	102.6	80.4	113.3	94.3	94.8	117.7	115.0*	82.5	97.9	76.6	121.6*
6	98.4	93.2	77.8	115.0	95.3*	98.9	112.7*	109.7	85.1	99.4	79.9	117.8
7	96.1	85.7	87.1	112.3	98.5	92.2	110.3	103.4	85.3	99.9	81.7	109.5*
8	97.2	82.5	91.6*	103.2	100.5	98.9*	121.0	100.0	87.4	97.6*	78.8	104.1
9	100.5	82.3	94.7*	103.7	100.9	104.7*	120.5	95.1	88.9	98.6*	78.4	101.8*
10	94.7	84.7	97.2*	103.8	102.1*	105.6*	115.5	90.9*	91.8	100.5	75.1	96.8*
11	93.5*	88.3	105.1*	102.8	101.2	113.4	110.3*	87.8	92.9	94.8	71.8	87.1
12	94.7	88.7	108.9	103.5	104.6*	114.5	130.4*	86.8	93.6	85.4	68.7	80.6
13	94.5	86.7	111.2*	100.9*	104.7*	118.9	99.4*	85.2	96.3	80.3	67.2	76.1
14	97.8	85.1	114.8*	96.2	105.6	114.8*	92.7*	89.3	97.7*	79.5	66.7	74.6
15	102.1*	86.5	116.1*	94.6	104.7	107.1*	89.5	98.1	98.2	78.7	65.3	74.3
16	106.2	89.6	110.2	93.8	98.7	106.9	85.8	89.5	95.2	79.5	66.7	75.5
17	112.1*	91.5	111.9	94.2	94.2	101.5	82.1	91.4	89.8	79.1	67.5	73.6
18	111.0	94.6	112.4	95.3	90.7	94.9	80.9	95.4	91.4	83.6	67.8	76.1
19	117.1*	99.7	113.2	94.8	88.9	96.7*	82.8	99.4	99.2	81.6	67.9	77.9
20	122.2	109.4	111.4	98.3	89.4	91.8	86.4	104.7*	105.4	79.5	69.1	82.8
21	132.8*	109.3*	113.4*	97.9	89.9	87.4	95.2	102.2	108.8	79.4	72.4*	85.4
22	141.7	110.9*	107.9*	98.5	89.7	90.3	105.8	103.1	109.4	77.6	72.4	89.6
23	151.2*	115.3*	106.2	97.2	91.4	87.1	109.2	99.6	108.8	76.6	73.6	93.5
24	156.5	115.4*	101.1	96.9	93.6*	89.4	109.0*	104.5	106.1	81.6	76.8	95.6
25	171.8	112.7	103.3*	95.6	97.2	90.8	109.2*	104.7	101.3	83.8	80.0	101.4
26	170.8*	108.6	97.7	95.3	95.6	88.6	110.0*	101.1	100.3	85.8	82.1	104.0
27	167.6*	102.3	97.6	93.4	98.2	92.6	111.6*	99.9	94.8	85.5	85.6	104.3
28	159.1*	97.5	91.9	91.7	100.9*	94.2	112.6	94.1	95.2	84.2	87.8	106.3
29	B.I.P.	92.7	92.8*	91.4		99.8	109.5*	93.3	95.1	89.5*	90.7	104.9
30	144.6*	95.1	92.8*	89.7		102.7	106.2*	90.8	94.1*	86.1	91.2	104.9*
31	140.1*		94.3	87.7		110.3		87.2		86.6	98.6	
MEAN	120.2	99.7	99.7	99.8	96.3	99.4	105.8	99.1	94.2	87.2	76.5	96.1

B.I.P. = burst in progress
* adjusted for burst

DAILY SOLAR INDICES

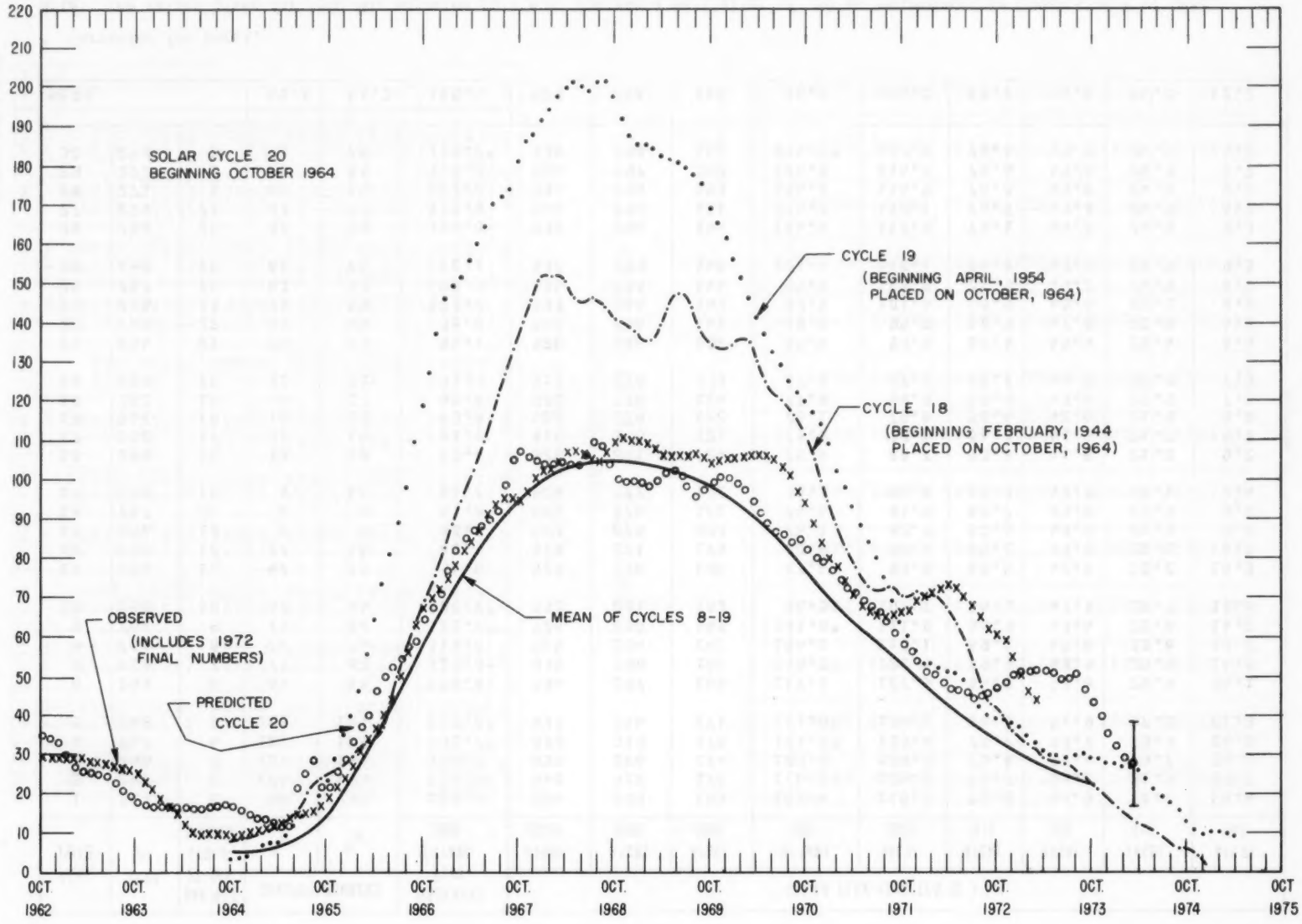
SEPTEMBER 1973

AUG. 1973	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
1	244	1	89	96	112.9	524	299	159	103.4	110.2	71.2	48.9	28.2	19.4
2	245	2	129	134	126.9*	540	312	175	116.3*	124.3	76.5	50.7	31.3	25.7
3	246	3	135	144	134.2	533	306	174	122.9	129.2	78.6	50.4	29.7	25.9
4	247	4	127	129	132.7*	533	313	175	121.5*	133.4	79.7	53.0	29.3	26.6
5	248	5	108	111	133.0*	533	304	171	121.6*	134.1	86.0	51.9	27.5	21.9
6	249	6	84	88	128.8	534	297	166	117.8	127.5	84.7	53.8	29.6	24.1
7	250	7	77	83	119.9*	535	290	160	109.5*	121.5	79.9	48.9	25.6	14.5
8	251	8	72	74	114.0	525	284	147	104.1	113.1	69.1	45.6	23.8	10.5
9	252	9	75	82	111.5*	528	280	148	101.8*	111.0	68.3	43.4	22.6	11.2
10	253	10	62	54	105.2*	532	281	150	96.0*	106.7	64.6	43.8	19.7	10.5
11	254	11	42	35	95.6	523	270	135	87.1	93.6	58.6	42.0	23.2	10.3
12	255	12	27	16	88.4	519	271	124	80.6	88.0	55.2	40.9	20.8	8.5
13	256	13	0	0	83.5	523	275	123	76.1	82.7	53.6	40.9	21.1	9.0
14	257	14	0	6	81.8	526	274	121	74.6	81.9	52.7	39.0	21.9	9.0
15	258	15	8	14	81.7	529	272	122	74.3	80.8	52.8	40.5	22.1	8.4
16	259	16	33	18	83.0	526	271	124	75.5	80.7	53.3	41.5	21.2	9.2
17	260	17	20	14	81.0	519	278	121	73.6	79.6	54.0	41.9	21.7	9.0
18	261	18	16	13	83.8	521	278	122	76.1	79.8	58.4	42.6	21.9	9.0
19	262	19	8	13	85.8	522	278	124	77.9	84.3	56.9	43.6	22.5	7.6
20	263	20	30	31	91.3	517	278	130	82.8	87.6	62.1	46.9	22.8	7.5
21	264	21	39	39	94.1	526	286	132	85.4	93.5	62.4	45.4	23.4	6.4
22	265	22	48	44	98.8	532	286	141	89.6	95.9	68.5	47.8	22.8	8.4
23	266	23	58	59	103.2	533	286	143	93.5	101.4	68.5	46.6	22.1	8.4
24	267	24	63	65	105.6	534	288	144	95.6	108.2	71.9	49.2	24.9	8.9
25	268	25	82	76	112.1	537	293	148	101.4	110.1	74.8	49.9	25.5	9.8
26	269	26	82	80	114.9	532	294	151	104.0	112.5	74.1	49.5	24.5	9.0
27	270	27	83	77	115.4	534	298	151	104.3	113.1	76.5	49.3	24.9	8.9
28	271	1	80	83	117.6	531	298	153	106.3	114.9	76.8	49.8	24.8	9.0
29	272	2	75	85	116.2	531	297	150	104.9	114.2	78.4	49.8	24.3	8.7
30	273	3	71	75	116.2*	536	298	146	104.9*	113.9	76.6	49.9	24.5	9.6
MEAN			60.8	61.3	105.6	529	288	144	96.1	104.2	68.2	46.6	24.3	12.2

* Corrected for burst.

Note: The values given for 2800 MHz adjusted to 1 A.U. contain a multiplier of .90 as recommended by Commission V of URSI.

7 Sep 73



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.4	64.6	65.8	66.2	66.8	69.4
1972	70.8	71.2	72.4	73.4	72.9	70.5	68.1	65.4	62.0	60.3	58.5	54.8
1973	50.3	45.8	43.6	42.0	40.7	39.0	37.7	36.9	35.9	34.3	32.6	31.0
				(3)	(4)	(6)	(7)	(8)	(10)	(10)	(10)	(10)
1974	29.7	28.4	27.4	26.7	26.2	25.3	24.1	22.7	21.1	19.7	18.4	17.3
	(10)	(11)	(11)	(12)	(12)	(12)	(12)	(12)	(11)	(11)	(12)	(12)
1975	16.5	15.5										
	(11)	(11)										

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1972.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

SEPTEMBER 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE SEP	START	END	MAX PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
ATHN	01	0843E	0901	0845	N13	W05	.132		1.0	18D	SF	3	V		.66				F
ISTA	01	0844	0910D		N15	W04	.152	12504	1.1	26D	1N								
CRON	02	0359E	0505	0424	S18	E56	.872	12512	6.4	66D	1N		V		2.89				
MANI	02	0614	0632	0618	S17	E53	.845	12512	6.2	18	1N	2		0618	1.75	3.14			F
TEHR	02	0624E	0634	0624U	S18	E56	.872		6.5	10D	SN	4	V		.52				F
MEND	03	1608E	1644		N22	W04	.263	12515	3.4	36D	1N		P		5.16				
MCMA	03	1613	1644	1616	N24	W04	.296	12515	3.4	31	SN		C	1616	1.29	1.40			EL
MEUD	03	1614	1632	1616	N22	W03	.260		3.5	18	SB		C	1616	1.55	1.60			E
CANR	03	1615E	1625	1618	N22	W03	.260	12515	3.5	10D	1N		V	1618	2.27	2.20			
RAMY	03	1618E	1638	1618U	N23	W04	.280		3.4	20D	SN	2	V		1.65				F
TEHR	04	1127E	1133	1129	S14	E60	.893		9.0	6D	SN	4	V		.25				DE
CANR	04	1128	1157	1138	S13	E55	.850		8.6	29	SN		V		1.03				
CATA	04	1130	1140	1130	S12	E55	.848		8.6	10	SB	3		1130	.87	1.63		(219)	
UPIC	04	1132	1145		S11	E56	.854		8.7	13	SN		V	1134	1.05				
MEUD	04	1132	1143	1135	S15	E51	.821		8.3	11	SN		C	1135	.93	1.50			
CATA	04	1140	1210	1140	S14	E51	.818	12513	8.3	30	1B	3		1140	1.16	2.01		(257)	Z
MEND	04	1458E	1518		N12	E21	.362	12510	6.2	20D	1N		V		4.13				
MEUD	04	1459	1515	1504	N12	E18	.315		6.0	16	SN		C	1504	1.13	1.20			E
UPIC	04	1459	1514	1507	N11	E18	.312		6.0	15	SF		P	1507	1.26				
CANR	04	1459	1520	1503	N13	E17	.304		5.9	21	SB		V		1.96				
MCMA	04	1459	1503D		N10	E19	.325	12510	6.0	4D	SB		P	1502	.83	.90			EH
CATA	04	1500	1520	1505	N12	E13	.236		5.6	20	SB	3		1505	1.73	1.78		(257)	
CANR	05	0918	0951	0925	S17	W17	.492	12507	4.1	33	1N		V	0925	3.30	3.30			
CRON	05	0920E	0946		S17	W18	.501		4.0	26D	SN		V		1.34				
CATA	05	0920	0950	0925	S18	W19	.522	12507	4.0	30	1N	3		0925	1.73	2.03		(162)	
MEND	05	0924E	0940		S18	W23	.558	12507	3.7	16D	1N		V		5.16				
MEUD	06	0912	0930	0915	N05	W98	1.000	12511	30.6	18	1B		C	0915	.93				E
UPIC	06	0914E	0927	0916	N07	W90	1.000	12511	30.6	13D	1B		P	0916	.42				
CANR	06	1203	1302	1218	S15	W34	.648		4.0	59	SN		V	1218	1.55	1.80			
MEUD	06	1205	1240		S17	W34	.662		4.0	35	SN		C	1210	1.34	1.70			F
MCMA	06	1205	1300D	1215	S18	W34	.669	12507	4.0	55D	1N		C	1215	1.55	2.10			EJ
RAMY	06	1205	1250	1224	S16	W32	.633		4.1	45	SN	3	C		1.11				F
CATA	06	1210	1350	1220	S16	W39	.708	12507	3.6	100	1N	3		1220	2.90	4.10		(195)	
UPIC	06	1214E	1250U	1223	S16	W34	.655	12507	4.0	36U	1N		P	1223	2.31				
CANR	07	1130	1142D	1142	S18	W46	.787	12507	4.0	12D	1B		V	1142	2.78	3.80			
TEHR	07	1138	1340D	1202	S17	W46	.783	12507	4.0	122D	2B	4	C		7.94				H S
RAMY	07	1139	1336	1151	S18	W45	.778		4.1	117	SN	4	C		1.49				U H
RAMY	07			1159							2B				4.92				
ATHN	07	1140E	1250D	1143	S18	W46	.787		4.0	70D	SN	3	V		1.32				U Z
ATHN	07			1202							2B				5.61				U Z
MCMA	07	1140	1430	1208	S17	W47	.792	12507	4.0	170	2B		C	1208	4.13	7.00			FL
CATA	07	1140	1310	1200	S17	W46	.783	12507	4.0	90	2B	3		1200	4.92	7.91		(316)	
MEUD	07	1140	1215D		S18	W47	.797		4.0	35D	2N		C	1203	4.13	6.50			U
UPIC	07	1144E	1400	1211U	S17	W46	.783	12507	4.0	136D	2B		P	1211	6.52				U
MEND	07	1206E	1337		S16	W46	.779	12507	4.1	91D	3B		P		18.56				
HERS	07	1210E	1330	1210E	S18	W45	.778	12557	4.1	80D	2B		P	1211	7.28	11.20		84	EH
MANI	08	0235	0255	0240	S15	W52	.830	12507	4.2	20	1B	2		0240	1.96	3.38			H
CRON	08	0238	0240	0240	S14	W52	.827		4.2	2	SN		V	0240	.93				
TEHR	08	0238E	0248	0241	S16	W50	.816		4.4	10D	SB	2	V		.83				DE H
PALE	08	0242E	0250	0242	S13	W52	.824		4.2	8D	SB	3	C		.45				F
MEUD	08	0904	0908	0904	S17	W56	.870		4.2	4	SF		C	0904	.31	.60			D
UPIC	08	0905E	0909		S19	W59	.897	12507	4.0	4D	1F		P	0905	.63				
MEND	08	1215	1256		S11	W03	.317	12513	8.3	41	2N		P		6.19				
TEHR	08	1215E	1252	1217	S11	W04	.320		8.2	37D	SN	3	V		1.65				F
CATA	08	1215	1305	1220	S10	W05	.308		8.1	50	SB	3		1220	1.44	1.52		(204)	
CANR	08	1217	1220D	1220	S10	E01	.297	12513	8.6	3D	1N		V		2.17				
RAMY	08	1235E	1258D	1237U	S12	W03	.333		8.3	15D	SN	4	V		.72				DE
MCMA	08	1237E	1300D		S10	W05	.308	12513	8.2	23D	SF		P	1237	1.03	1.10			E
MEUD	08	1239E	1241D		S11	W02	.315	12513	8.4	2D	1F		C	1240	2.06	2.10			
RAMY	09	1843	1924	1848	S19	W83	.997	12507	3.6	41	1N	3	C						DE
PALE	09	1843E	1858	1845U	S19	W77	.985		4.0	7D	SF	1	C		.45				
PALE	10	0255	0315D	0259U	S10	W42	.710		7.8	20D	SB	2	C		1.34				F
MANI	10	0256	0323D	0301	S11	W42	.715	12520	7.8	27D	1N	2		0301	2.27	3.19			F
TEHR	10	0300E	0310D	0300U	S10	W43	.759		6.9	10D	SN	2	V		.21				F
TEHR	10	0300E	0310D	0300U	S09	W39	.671		7.2	10D	SN	2	V		.52				F
ATHN	11	0654	0729	0659	S12	W56	.856		7.1	35	SN	3	C		1.49				F
CRON	11	0654E	0734		S10	W54	.834		7.2	40D	SN		V		1.03				
CATA	11	0655	0735	0705	S12	W55	.848	12520	7.2	40	1B	1		0705	2.60	4.91		(219)	
TEHR	11	0655	0740	0704	S11	W53	.827		7.3	45	SB	3	V		.99				Z U

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

SEPTEMBER 1973

OBSERVATORY	DATE SEP	OBSERVED UT START	OBSERVED UT END	OBSERVED UT MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER DIST.	LOCATION CENTRAL DISTANCE	LOCATION McMATH PLAGE REGION	LOCATION CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME — UT	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	REMARKS
ISTA	11	0700E	0743D		S10	W55	.843		7.2	43D	SN								
CANR	11	0720	0747		S11	W55	.845		7.2	27	SN		V	0721	.83	1.36			
ATHN	11	0724	0738	0729	S12	W40	.697		8.3	14	SF	3	C		.33				DE
ISTA	11	0727	0824	0804	S11	W39	.681		8.4	57	SN								
ATHN	11	0753	0819	0800	S11	W41	.703		8.3	26	SN	3	C		.99				F
TEHR	11	0756	0824	0759	S11	W39	.681		8.4	28	SN	3	V		.66				DE
HEUD	11	0758	0820	0802	S12	W41	.708		8.3	22	SN		C	0802	1.24	1.70			E
CRON	11	0800	0821		S10	W41	.699		8.3	21	SF		V		.88				
CATA	11	0800	0835	0805	S12	W41	.708	12513	8.3	35	1B	3		0805	1.44	2.05		(204)	
MANI	14	0225	0258	0228	S13	W84	.997		7.8	33	SN	2		0228	.72	2.02			F
PALE	14	0226E	0244	0233U	S16	W85	.999	12513	7.7	18D	1N	2	V		1.03				F
CRON	14	0228	0335D	0335	S10	W78	.983		8.3	67D	SN		V	0335	.83				
CRON	14			0307										0307	.83				
TEHR	14	0304	0315D	0307	S13	W82	.994		8.0	11D	SB	3	C		.55				F
MANI	14	0305	0315	0307	S12	W85	.998	12513	7.8	10	1B	2		0307	1.55	4.42			F
PALE	24	0242	0256	0246	N22	E90	.999	12537	30.9	14	1N	2	C		.63				
PALE	25	0034	0132D	0053U	N29	E73	.950	12541	30.5	58D	1N	2	V		2.06				

"Remarks":
A = Eruptive prominence, base at >90°
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

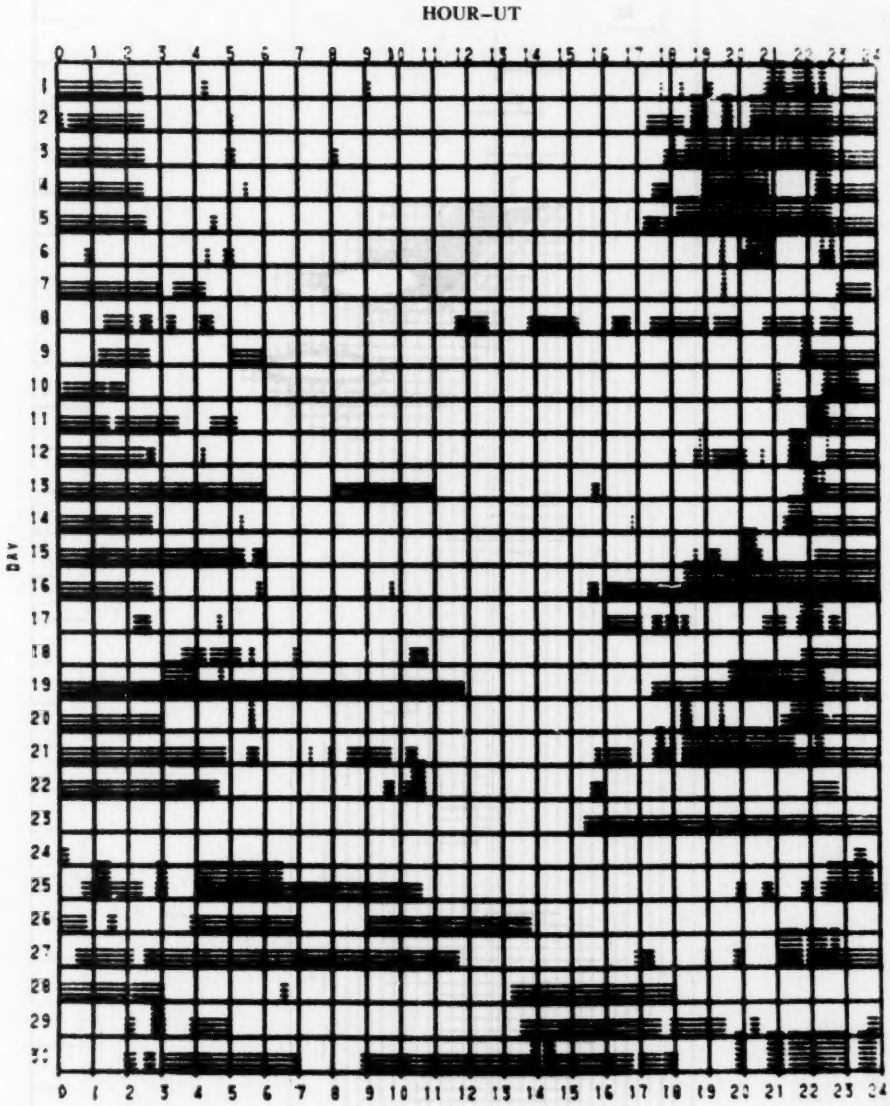
SEPTEMBER 1973

01 0035E N04 W20	01 0041E N14 E70	01 0041E N13 E73	01 0048E N14 E71	01 0125E N04 W21	01 0125E N04 W21
01 0205 N14 E72	01 0207E N14 E78	01 0537 N04 W25	01 0548 N15 E76	01 0549 N16 E70	01 0630E N05 W27
01 0639 S19 E71	01 0728E N05 W26	01 0744 N16 E66	01 0748E N15 E67	01 0749 N13 E66	01 0750 N14 E65
01 0750E N16 W71	01 0755 N13 E67	01 1046 N16 E10	01 1048E N13 W06	01 1048 N15 W02	01 1050 N15 W03
01 1313E S14 E64	01 1314 S16 E66	01 1347E N14 E65	01 1354 N13 E62	01 1430 S17 E30	01 1825 S18 E28
01 1828E S16 E25	01 2122E S17 E65	02 0044 S16 E62	02 0157E S17 E24	02 0223E S18 E57	02 0522 S18 E56
02 0522 S18 E56	02 0540E S18 E56	02 0712E S18 E54	02 0748E S18 E56	02 0749 S18 E56	02 0750E S17 E58
02 0750 S18 E55	02 0750E S18 E55	02 0751E S15 E53	02 1752 S08 E04	02 0753 S08 E01	02 0753 S09
02 0754 S08 E01	02 0754E S10 W00	02 0804E S10 W00	02 0811 S18 E58	02 0815 S18 E55	02 0818 S10 E00
02 0821 S10 W00	02 0826 S08 E01	02 0827 S09 W01	02 0947E S18 E53	02 0952E S18 E54	02 1018E S18 E54
02 1036E S12 E68	02 1036E S09 W01	02 1050 S15 E53	02 1121 S17 E52	02 1126E S18 E54	02 1233E S18 E54
02 1238 S18 E51	02 1343E S18 E50	02 1344 S17 E51	02 1345E S17 E50	02 1601 S16 E48	02 1620E N06 E90
02 1625 S17 E49	02 1626 S16 E50	02 1626 S16 E50	02 1904E S18 E47	02 1950E S16 E15	03 0028 S17 E44
03 0202E S18 E43	03 0308 S12 W43	03 0612 S18 E06	03 0751 S14 E10	03 0805 S15 E08	03 0818 S17 E41
03 0826E S17 E42	03 0830 S17 E40	03 1041E S17 E42	03 1042 S17 E38	03 1043 S17 E39	03 1045 S17 E37
03 1323 N22 W02	03 1500 S14 E64	03 2018E S13 E62	03 2124E N13 E28	03 2357E S17 E30	04 0022 N22 W09
04 0022 N15 E26	04 0036 S17 E32	04 0052E N13 E27	04 0140 S17 E30	04 0324E N13 E23	04 0943E N13 E18
04 0944 N13 E19	04 0945 N15 E19	04 0520 N13 E19	04 0524E N13 E22	04 0553 N13 E22	04 0600E N12 E22
04 0618E S18 E27	04 0705 N14 E20	04 0757 N14 E20	04 0804 N13 E20	04 0804 N14 E22	04 0805 N14 E20
04 0846 N16 E20	04 0856 N14 E20	04 0946 N13 E19	04 0950 N14 E19	04 0952E N14 E20	04 1123 S12 E55
04 1123 S18 E57	04 1125E S12 E57	04 1216 N12 E21	04 1455 S18 W13	04 1455 S17 W12	04 1455 S18 W14
04 1459 S18 W10	04 1506 S12 E53	04 1507 S12 E56	04 1543 S10 W12	04 1545 S12 W10	04 1627 N13 E14
04 1627 N15 E16	04 1628 N13 E16	04 1642 N13 E16	04 1708 S13 E51	05 0215 S16 W16	05 0231 S17 W18
05 0335 N17 E19	05 0336 N18 E18	05 0337 N19 E19	05 0436E S17 W19	05 0441E S19 W20	05 0448 N11 E11
05 0522E N13 E16	05 0630E S11 W73	05 0635 S18 W21	05 0912 N14 E13	05 0917 N11 E08	05 0920E N11 E08
05 0920 N12 E08	05 0924 N11 E05	05 1110 S19 W24	05 1111 S15 W18	05 1114 S17 W23	05 1115 S18 W23
05 1255 S19 W22	05 1256 S18 W22	05 1308 N15 E11	05 1313 S19 W22	05 1316E S15 W18	05 1438 N14 E10
05 1655 S13 W24	05 1655 S15 W24	05 2357E N15 W80	06 0106 N12 W01	06 0107E N11 W01	06 0107E N11 W01
06 0151E N14 W02	06 0152 N14 W03	06 0336 S17 W30	06 0337 S15 W28	06 0538 N13 W04	06 0625E N07 W90
06 0750 N12 W04	06 0750 N12 W04	06 0751E N12 W04	06 0751 N11 W04	06 0751 N13 W10	06 0755 N11 W04
06 1020E N06 W90	06 1046E N05 W90	06 1210E S13 W90	06 1245 S17 E28	06 1300 S15 E20	06 1351E N08 W90
06 1611 S20 W38	06 1618 S17 W36	06 1630E S16 W36	06 1634 S14 W36	06 1703E S13 E23	06 1816 S19 W08
06 1820E S17 E09	06 1833E S19 W08	06 2102E S18 E20	07 0001 S19 W09	07 0003 S17 W09	07 0207 S18 N43
07 0212 S20 W42	07 0426 N23 W50	07 0426 N22 W49	07 0428 N26 W49	07 0854E S15 W40	07 1411 N13 W17
07 1412E N15 W17	07 1602 S11 E09	07 1712E S17 E07	07 1715 S14 E07	07 1904E S11 W78	07 1916 N23 W57
07 1935E N26 W56	07 2045 S12 W49	07 2106 S13 E08	07 2226E S10 W88	07 2250E S18 W50	07 2250E N24 W58
07 2251E S15 W51	07 2356 S16 W50	08 0210 N14 W66	08 0245 N15 W66	08 0411 N22 W63	08 0745 S16 W56
08 0849 S17 W56	08 1818E N25 W73	08 1830 N17 W37	08 1944E S11 W07	08 2029 N27 W75	08 2202E N16 W74
08 2230 S11 W10	08 2324 S11 W11	09 0122 S10 W11	09 0141 S10 W11	09 0451E S18 W38	09 0500E S11 W14
09 0507E S12 W15	09 0510E S11 W15	09 0635 S18 W68	09 0636 S20 W71	09 0638 S16 W70	09 0644 S15 W78
09 0817 S11 W17	09 0818 S10 W18	09 0819 S10 W15	09 0820E S10 W17	09 0820E S09 W17	09 0850 S11 W31
09 0852 N11 W43	09 1015 S10 W18	09 1020 S10 W20	09 1126 S09 W31	09 1525E S08 W37	09 1526 S09 W34
09 1558 N23 W85	09 2051E S19 W85	09 2053E S17 W79	09 2058E S19 W83	09 2103 S09 W40	09 2118 N23 W82
09 2204E S11 W37	09 2205E S11 W39	09 2215E N21 W88	10 0022 S19 W42	10 0026 S11 W38	10 0129 S11 W40
10 0223 S11 W41	10 0223 S10 W41	10 0229 S17 W45	10 0229 S17 W45	10 0239 S19 W43	10 0821 S10 W43
10 0826E S12 W41	10 1136 S09 W47	10 1140 S11 W44	10 1143 S12 W45	10 1150 N23 W90	10 1209 S10 W31
10 1212 S10 W32	10 1450 S10 W49	10 1610E S18 W90	10 1843 S11 W32	10 1844E S10 W32	10 2014 S11 W49
10 2014 S10 W49	10 2023 S10 W33	10 2024 S10 W34	11 1126E S12 W42	11 1245E S12 W39	11 1246 S13 W42
11 1445 S10 W45	11 1552 S12 W44	11 1557 S13 W45	11 1650 S11 W45	11 2110 S10 W49	11 2110 S10 W50
12 0420 S12 W64	12 1049 S13 W59	12 1616 S15 W57	12 1819E S10 W78	12 2341E S12 W74	13 0457 S13 W66
13 0646E S12 W66	13 0745E S11 W83	13 0932E S13 W66	13 0935 S12 W67	13 1041 S13 W68	13 1042 S11 W73
13 1231 S12 W71	13 1908 S08 W78	14 1322 S12 W90	14 1416 S12 W90	15 2244E S09 E53	16 0435 S13 E51
16 0717 N16 E65	16 1228 N13 W22	17 0143 S09 E36	17 0150 S10 E37	17 0151E S10 E37	18 0438E N22 E86
18 1956E N17 E35	19 0616E N13 E28	19 1846 N12 E90	21 1834 N12 E69	21 1035 N12 E65	21 1035 N13 E63
21 1041E N12 E71	21 1342 N13 E68	22 0307 N15 E61	22 0353 S16 W17	22 0654E N15 W14	22 0920E N16 W16
22 1318 N16 E52	22 2109 N16 E50	23 0935 N04 E37	23 0940 N04 E35	23 1220E N05 E33	23 1252 N05 E35
23 1503 N05 E33	23 1514 N04 E33	23 1747 S15 E35	23 1748 S14 E30	23 1759E S12 E32	23 1828 N12 E40
23 1910E N04 E37	24 0245 N19 W35	24 0447 N12 E33	24 0448E N10 E35	24 0547E N13 E38	24 0624 N15 E32
24 0630 N15 E90	24 0639 N13 E39	24 0655E N13 E37	24 0655E N14 E36	24 0655 N14 E33	24 0715E N13 E31
24 1139E N13 E34	24 1240 N14 E29	24 1754 N03 W06	24 1758E N05 W04	25 0653 S12 E06	25 1716E N04 W16
25 1716 N05 W15	25 1717 N13 E10	25 1812E S14 E80	25 1905E N13 E12	25 2025E N06 W16	26 0141E N03 W21
26 0353 N05 E04	26 0640E N04 W23	26 0907 N07 W29	26 1905E N13 E12	26 2000 S16 E78	26 2025E N06 W16
26 2044 N07 W36	26 2108 N16 E03	27 0012 N17 E01	27 0022E N16 E01	27 0303 N17 W08	27 0851 N12 W12
27 0851 N14 W14	27 0855E N12 W12	27 1107 S13 E48	27 1108 S16 E48	27 1110 S15 E47	27 1155 S15 E72
27 1157 S12 E69	27 1339 S11 E90	28 0746 S14 E38	28 1723 N07 W58	28 1910 S16 E30	28 1940 N17 W29
29 0448E S15 E57	29 1511E N15 W40	29 1555 N13 W37	29 1555 N13 W42	29 1705E N16 E51	29 1852E N13 W42
29 1852E N02 W50	29 1942 S16 E40	29 2108 N15 W45	29 2357E N16 E47	30 0015 N15 W42	30 0038 N14 W43
30 0336E N16 E47	30 0536 N08 W50	30 0606 N14 W45	30 0659 N13 W50	30 0726E S14 E13	30 0948 N11 W54
30 1123 N11 W55	30 1145 N17 E39	30 1421E S13 E33	30 1431E S12 E30	30 1517 S14 E07	30 1521E S12 E10
30 1804E S16 E03	30 2317 S15 E01				

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

SEPTEMBER 1973



Observatories included in total patrol:

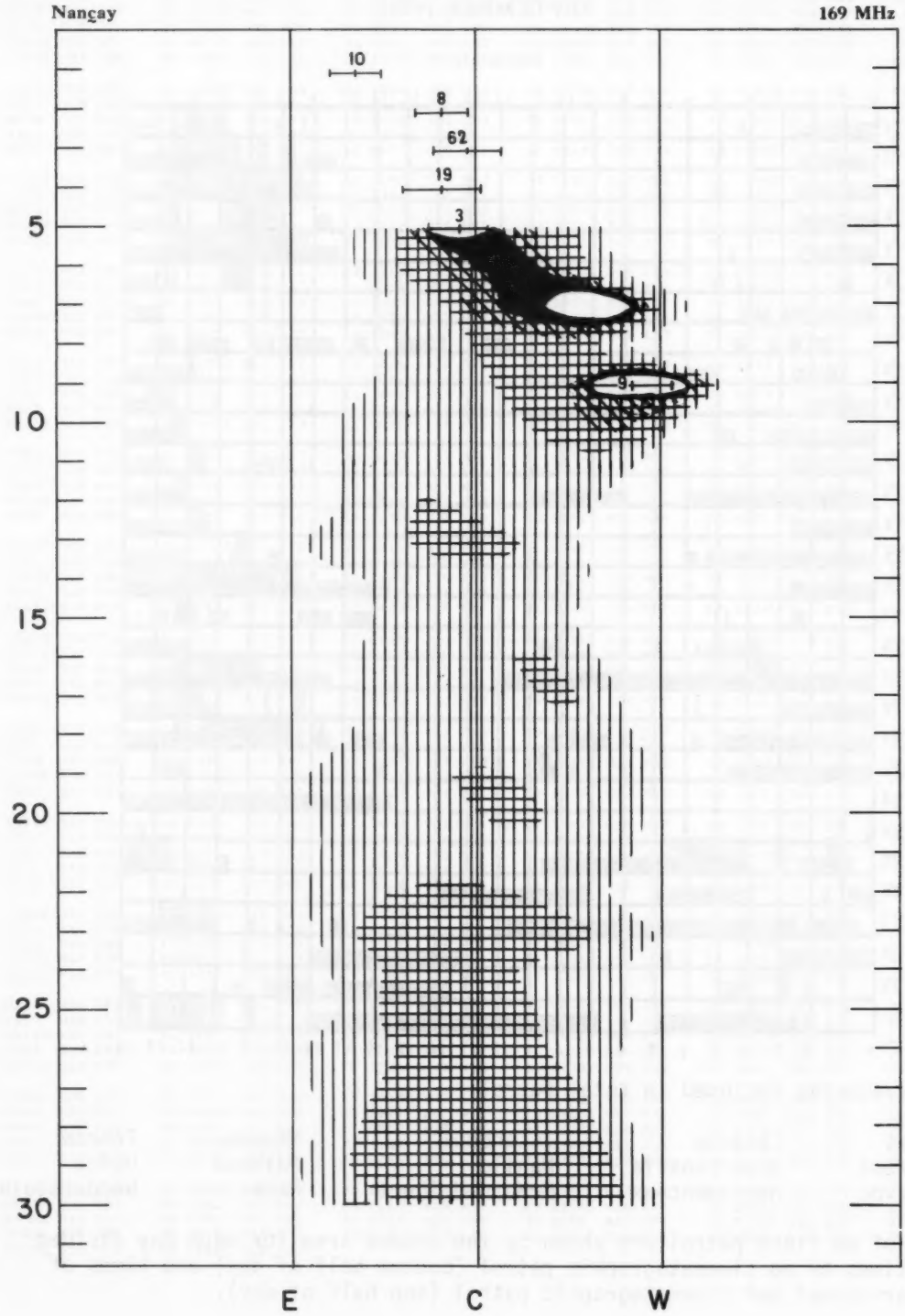
Athenes	Catania	Istanboul	Meudon	Tehran
Bucharest	Gran Canaria	Manila	Palehua	Upice
Carnarvon	Herstmonceux	McMath-Hulbert	Ramey	Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

14
Sep 73

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

SEPTEMBER 1973

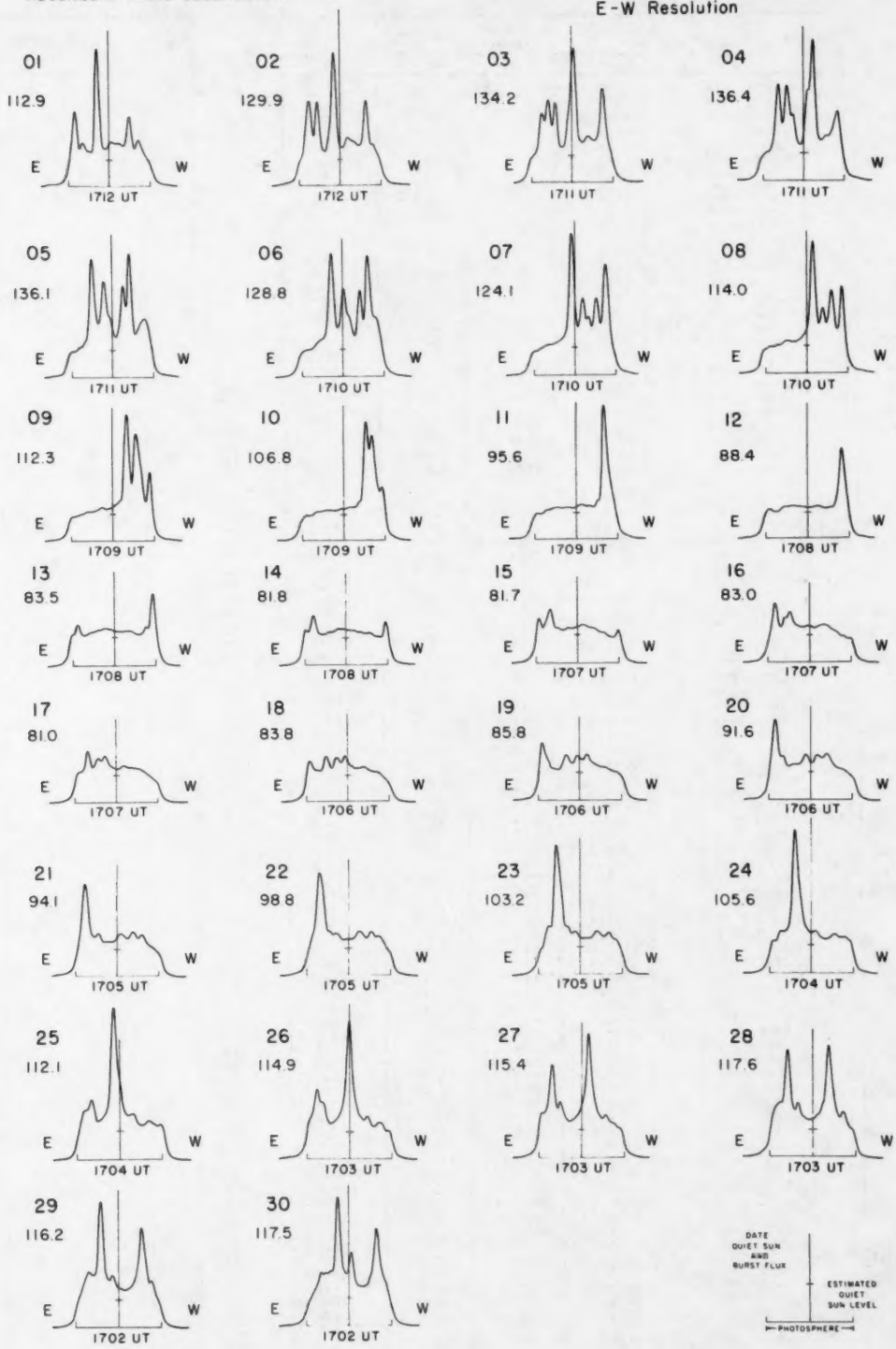


EAST-WEST SOLAR SCANS

September 1973

ALGONQUIN RADIO OBSERVATORY

10.7 cm
Fan-Beam with 1.5 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1973

SEP. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
1	2800 OTTA	24	1300		7	2.0			
	2800 OTTA	24	1307		128	2.0			
	8800 SGMR	1	1428.8	1429.2	1	9.0	3.0		
	2800 OTTA	24	1515		15	1.0			
	2800 OTTA	24	1530		117	1.0			
	2800 OTTA	24	1712		48	2.0			
	2800 OTTA	24	1800		165	2.0			
	8800 SGMR	22	1823	1823.9	10.6	10.4	2.6		
	2800 OTTA	24	2045		45	2.2			
	2800 OTTA	24	2130		260 D	2.2			
	2695 PENT	20	2255	2325	50	1.2	0.6		
2	2800 OTTA	24	1112		18	3.8			
	2800 OTTA	24	1140		110	3.8			
	2800 OTTA	27	1143		52	2.0			
	2800 OTTA	24	1330		25	2.0			
	2800 OTTA	24	1355		70	2.0			
	2800 OTTA	25	1505		85	1.0			
	2800 OTTA	27	1505		85	3.0			
	2800 OTTA	25	1630		270	1.0			
	8800 SGMR	3	1600.6	1601	4.7	10.3	4.0		
	2800 OTTA	23	1635	1910	235	5.8	3.0		
	8800 SGMR	1	1807.5	1808	3.3	8.2	3.8		
	2695 SGMR	1	1807.4	1808	2.7	3.1	1.5		
	2800 OTTA	1	1807.5	1808	1.5	3.0	1.5		
	2800 OTTA	45	1935	1938	7	8.0	2.6		
	2695 BOUL	3	1937.5	1938	1	5.0	2.0		
	2800 OTTA	20	2105	2210	145	3.8	1.9		
3	2695 CANR	3	1043	1043.5	1	5.0	2.0		
	8800 SGMR	20	1458.4	1505.9	23.3	14.2	7.0		
	8800 SGMR	22	1610.6	1615.7	35.1	31.1	15.2		
	2695 SGMR	22	1610.5	1614.1	34.1	11.7	5.0		
	2800 OTTA	21	1612.8	1615	77	7.6	2.0		
	4995 CANR	3	1613	1615.5	7.5	14.0	5.0		
	2800 OTTA	1	1613.5	1614	1	4.6	2.4		
	2695 BOUL	3	1614.5	1615.5	11.5	9.0	3.0		
	2695 CANR	45	1614	1617	15.5	8.0	2.0		
	2800 OTTA	1	2122.5	2123.5	3	7.2	2.0		
	2695 BOUL	3	2124	2125	2	8.0	2.0		
	2695 PENT	2	2334.5	2335	1.5	4.0	2.0		
4	2695 PENT	26	0035		20	2.3			
	2695 CRON	45	0051.5	0054	4	13.0	4.0		
	2695 PENT	46	0051	0053	6	14.4	8.2		
	2695 MANI	4	0052.2	0054.4	6.5	17.6	6.4		
	8800 MANI	4	0053.2	0054.1	3.1	10.4	1.7		
	2695 CANR	45	0946	0948.5	10.5	61.0	18.0		
	4995 CANR	4	0946.5	0948	4	42.0	14.0		
	2695 CRON	4	0947	0949	2.5	29.0	8.0		
	4995 CANR	45	1457.5	1501.5	11	12.0	3.0		
	2695 SGMR	22	1458.3	1501.1	23.7	18.6	7.5		
	2800 OTTA	21	1458	1504	32	6.0	2.6		
	2800 OTTA	1	1458.5	1459	1	2.0	0.8		
	2695 CANR	45	1459	1504.5	10	22.0	5.0		
	2800 OTTA	46	1500.3	1501.3	3	17.8	7.4		
	2695 BOUL	45	1501	1502.5	7	17.0	5.0		
	2800 OTTA	4	1504	1504.2	.8	14.0	7.0		
	2800 OTTA	29	1504.8		1.5	3.8			
	8800 SGMR	20	1538.8	1549.9	44.8	8.6	4.3		
	2800 OTTA	21	1538	1549	170	9.0	4.0		
	2695 SGMR	20	1539.5	1549.7	47.9	10.8	5.4		
	2695 BOUL	21	1545.5	1550.5	18	8.0	2.0		
	2695 CANR	21	1546.5	1548.5	21.5	6.0	1.0		
	2695 SGMR	1	1627.4	1627.7	.9	2.2	.7		
	2695 SGMR	20	1628.3	1635.1	31.7	7.6	2.9		
	2695 CANR	3	1632.5	1635.5	6	6.0	2.0		
	4995 CANR	21	1633	1636.5	10.5	9.0	3.0		
	2800 OTTA	2	1633	1634.2	8	3.8	1.3		
	2695 BOUL	3	1634	1636	7	5.0	2.0		
	2695 BOUL	21	1711.5	1713	7	5.0	1.0		
	2800 OTTA	1	1711.3	1711.5	.7	3.8	1.9		
	2800 OTTA	20	1912	1923	23	2.4	1.2		
	2800 OTTA	20	1940	2010	65	2.4	1.2		
	2800 OTTA	20	2110	2120	50	2.4	1.2		
	2695 PENT	20	2220	2400	125	2.6	1.3		
5	2695 BOUL	3	0015	0016	2.5	4.0	1.0		
	2695 CANR	3	0914	0922.5	15	8.0	2.0		
	2695 CRON	3	0916	0922.5	16	7.0	2.0		
	4995 CANR	3	0918	0922	10	16.0	5.0		
	2695 CANR	21	1028.5	1033	11	5.0	1.0		
	4995 CANR	3	1028.5	1031	4	5.0	1.0		
	2800 OTTA	21	1240	1258	225	4.4	2.2		
	8800 SGMR	20	1247	1315	47.6	7.3	3.6		
	2695 SGMR	20	1254.4	1308.8	42.2	3.1	1.5		
	4995 CANR	45	1313.5	1317.5	12.5	11.0	3.0		
	2800 OTTA	20	1313	1320	25	2.4	1.4		
	2695 CANR	3	1314.5	1315.5	1.5	2.0	1.0		
	2800 OTTA	20	1525	1530	23	1.4	0.7		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1973

SEP. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800 OTTA	20	1640	1725	105	3.6	2.0		
	4995 CANR	45	1655	1657	11.5	8.0	2.0		
	2695 SGMR	4	1827.9	1830.2	9.5	38.0	15.0		
	4995 CANR	3	1827.5	1830	5.5	36.0	10.0		
	8800 SGMR	4	1828.3	1830.3	12.5	31.4	13.0		
	2800 OTTA	4	1828	1830.3	5	43.0	19.0		
	2695 CANR	45	1830	1833	7	42.0	11.0		
	2800 OTTA	29	1833		8	3.2	1.6		
	2800 OTTA	31	1840	1855	60	-2.4	-1.2		
	2800 OTTA	21	2000	2010	80	8.8	2.9		
	2695 PENT	1	2003.5	2005.5	4	4.4	2.0		
	2695 BOUL	45	2004	2009.5	13	6.0	2.0		
	2800 OTTA	26	2125		20	2.4			
	2695 PENT	20	2305	2350	100	3.2	1.7		
6	2695 CRON	45	0751	0752.5	8.5	7.0	2.0		
	2695 CANR	3	0752.5	0753.5	2.5	5.0	2.0		
	2695 CRON	3	0911.5	0912.5	2	6.0	2.0		
	2695 CANR	3	0912.5	0914	2.5	6.0	2.0		
	4995 CANR	3	0912.5	0913.5	2.5	12.0	4.0		
	2695 CRON	8	0917.5	0918	1.5	16.0	6.0		
	2695 CANR	45	0920	0921.5	5.5	18.0	6.0		
	2800 OTTA	27	1150		260	4.8			
	2800 OTTA	20	1241	1243.5	14	2.4	1.2		
	2695 CANR	45	1242	1244	6.5	4.0	1.0		
	2800 OTTA	20	1300	1304	10	2.0	1.0		
	2695 CANR	3	1302	1304	3.5	2.0	1.0		
	2800 OTTA	21	1622	1640	30	2.2	1.1		
	2695 BOUL	3	1624.5	1626.5	3	4.0	1.0		
	2800 OTTA	1	1625.5	1626	1.5	2.0	1.0		
	2800 OTTA	20	1700	1715	70	2.0	1.0		
	2800 OTTA	22	1815	1845	128	4.4	2.8		
	2800 OTTA	20	2030	2110	60	2.0	1.0		
	2695 PENT	20	2300	2307	25	3.0	1.5		
7	2695 PENT	27	0000		70	2.4			
	2695 CRON	3	0208.5	0214.5	13	5.0	2.0		
	4995 CANR	45	1129	1201.5	96	167.0	68.0		
	2800 OTTA	46	1138	1143.5	7	18.2	9.1		
	8800 SGMR	23	1139.3	1153.6	90.2	32.2	16.1		
	2695 SGMR	23	1139	1143.8	94	27.3	13.7		
	2695 CANR	45	1140	1201.5	90	232.0	70.0		
	2800 OTTA	30	1145		555	9.8	4.9		
	2800 OTTA	28	1148.5	1153.5	6.2	23.0	11.5		
	8800 SGMR	46	1155	1156.3	51.3	219.8	53.1		
	8800 SGMR	46		1200.1		268.3			
	2695 SGMR	46	1154.6	1156.4	24.1	283.8	78.5		
	2695 SGMR	46		1200.1		296.2			
	2800 OTTA	46	1154.7	1200	27.3	325.0	116.0		
	2800 OTTA	29	1222		190	11.4	6.2		
	2800 OTTA	21	1600	1610	60	2.2	1.2		
	2695 BOUL	3	1604	1605.5	3.5	5.0	2.0		
	2800 OTTA	1	1604	1605	3	2.2	1.1		
	2695 CANR	3	1605.5	1606	1.5	3.0	1.0		
	2800 OTTA	22	1705	1720	45	2.6	1.3		
	2800 OTTA	21	1835	1925	80	2.6	1.3		
	2800 OTTA	1	1914.8	1916	4	1.2	0.6		
	2800 OTTA	23	2158	2235	145	3.0	1.7		
	2695 BOUL	21	2249.5	2250	7.5	6.0	2.0		
	2695 PENT	20	2250	2253	10	3.0	2.5		
8	2800 OTTA	21	1205	1238	165	7.4	2.5		
	2800 OTTA	1	1215.5	1218	3.5	5.4	3.0		
	2695 CANR	3	1218	1219	2	5.0	2.0		
	2800 OTTA	29	1219		14	2.8	1.4		
	2800 OTTA	26	1900		25	2.2			
	2695 PENT	27	2135		170	1.8			
9	2800 OTTA	22	1657	1706	45	2.0	1.0		
	2800 OTTA	27	1800		140	2.0			
	2800 OTTA	20	2116	2118	14	3.0	1.5		
	2695 BOUL	3	2117.5	2118.5	7	4.0	1.0		
	2800 OTTA	21	2144	2146.5	22	4.0	1.4		
	2695 BOUL	3	2145	2148	8	16.0	6.0		
	2800 OTTA	3	2147	2147.2	2	13.2	6.6		
10	8800 MANI	4	0228 E	0230.3	13.5D	84.0U	27.9D		
	2695 MANI	4	0228 E	0230.4	10.7D	61.0U	22.1D		
	2695 MANI	2	0253.4U	0257.2U	7.4U	9.2U	1.8U		
	8800 MANI	4	0254.4	0256	6.4	18.6	5.6		
	2800 OTTA	27	1130		205	5.0			
	2800 OTTA	32	1500	1540	60	-3.4	-1.7		
	2800 OTTA	20	1625	1640	75	2.0	1.1		
	2800 OTTA	27	1800		70	1.0			
	2695 SGMR	1	1843.8	1844.6	3.4	6.8	2.1		
	2800 OTTA	1	1844	1844.5	2	3.2	1.6		
	2695 BOUL	3	1944.5	1945.5	5	5.0	2.0		
	2800 OTTA	23	1955	2015	75	2.0	1.0		
	2800 OTTA	20	2022	2024.5	20	3.0	1.5		
	2800 OTTA	27	2125		125	1.8			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1973

SEP. 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
11	2695 MANI	40	0648.2	0703.7	18.5	17.9	5.1		
	2695 CRON	45	0649.5	0602	14.5	14.0	4.0		
	8800 MANI	4	0651.6	0657.9	14.1	19.2	8.0		
	2800 OTTA	27	1420		120	2.0			
	2695 SGMR	1	1653.2	1653.5	2	5.9	1.8		
	2800 OTTA	1	1653.2	1653.3	1	3.6	1.2		
	2800 OTTA	21	1830	2030	275	5.0	2.5		
	2800 OTTA	21	2110.7	2112	35	2.0	1.0		
	2800 OTTA	1	2110.7	2111.2	.8	1.8	0.9		
	2695 PENT	1	2252	2252.1	1	1.4	0.7		
12	2800 OTTA	26	1528		60	1.7			
	2695 PENT	22	2305	2350	135	3.8	1.6		
13	2800 OTTA	20	1310	1322	45	1.4	0.7		
	2695 BOUL	45	1505.5	1512	10	6.0	2.0		
	2800 OTTA	21	1505	1507	60	2.0	1.0		
	2695 CANR	45	1506	1511.5	14	6.0	2.0		
	2800 OTTA	1	1509	1511.5	5	2.8	1.4		
14	2695 MANI	3	0228.2	0228.8	3	10.0	2.7		
	2695 CRON	3	0228	0229	7.5	8.0	3.0		
	2800 OTTA	27	1250		150	1.4			
16	2695 BOUL	3	0026.5	0028	2.5	4.0	1.0		
18	2695 PENT	20	2240	2345	85	1.2	0.6		
21	2695 CANR	3	0729.5	0733.5	8.5	4.0	1.0		
	4995 CANR	3	0730	0733.5	6	9.0	3.0		
22	2695 PENT	2	0012	0014	3	2.0	1.2		
23	2800 OTTA	22	1555	1625	60	1.8	0.9		
	2800 OTTA	22	1715	1805	75	2.2	1.1		
24	2800 OTTA	27	1245		125	1.8	1.2		
	2800 OTTA	24	1540		35	2.0			
	2800 OTTA	24	1615		240	2.0			
	2800 OTTA	22	1732	1810	83	2.0	0.9		
	2695 CANR	3	1820	1822	3.5	14.0	5.0		
	4995 CANR	3	1820	1821.5	4	14.0	5.0		
	2800 OTTA	24	2015		140	1.8			
	2800 OTTA	24	2235		150 D	1.8			
25	2695 CRON	3	0158.5	0159.5	3.5	5.0	2.0		
	2800 OTTA	27	1520		360	1.0			
	2695 SGMR	2	1604.6	1604.9	.7	3.0	.9		
	2800 OTTA	20	1806	1811	24	2.2	1.1		
26	2800 OTTA	22	1705	1720	45	1.2	0.7		
	2800 OTTA	24	2105		10	1.4			
	2800 OTTA	24	2115		240 D	1.4			
27	2695 PENT	20	2223	2245	40	1.8	0.9		
29	2800 OTTA	20	1405	1420	75	2.4	1.2		
	2800 OTTA	22	1540	1605	65	2.0	1.0		
	2695 BOUL	3	1758	1759.5	5.5	4.0	1.0		
30	2800 OTTA	21	1420	1445	90	3.4	2.0		
	2800 OTTA	21	1517	1522	15	1.6	0.8		
	2800 OTTA	1	1517	1518	2	.8	0.4		
	2800 OTTA	20	1602	1710	120	2.0	1.0		
	2800 OTTA	20	1855	1945	125	2.0	1.0		
	2695 PENT	1	2318	2319	2	1.8	0.9		

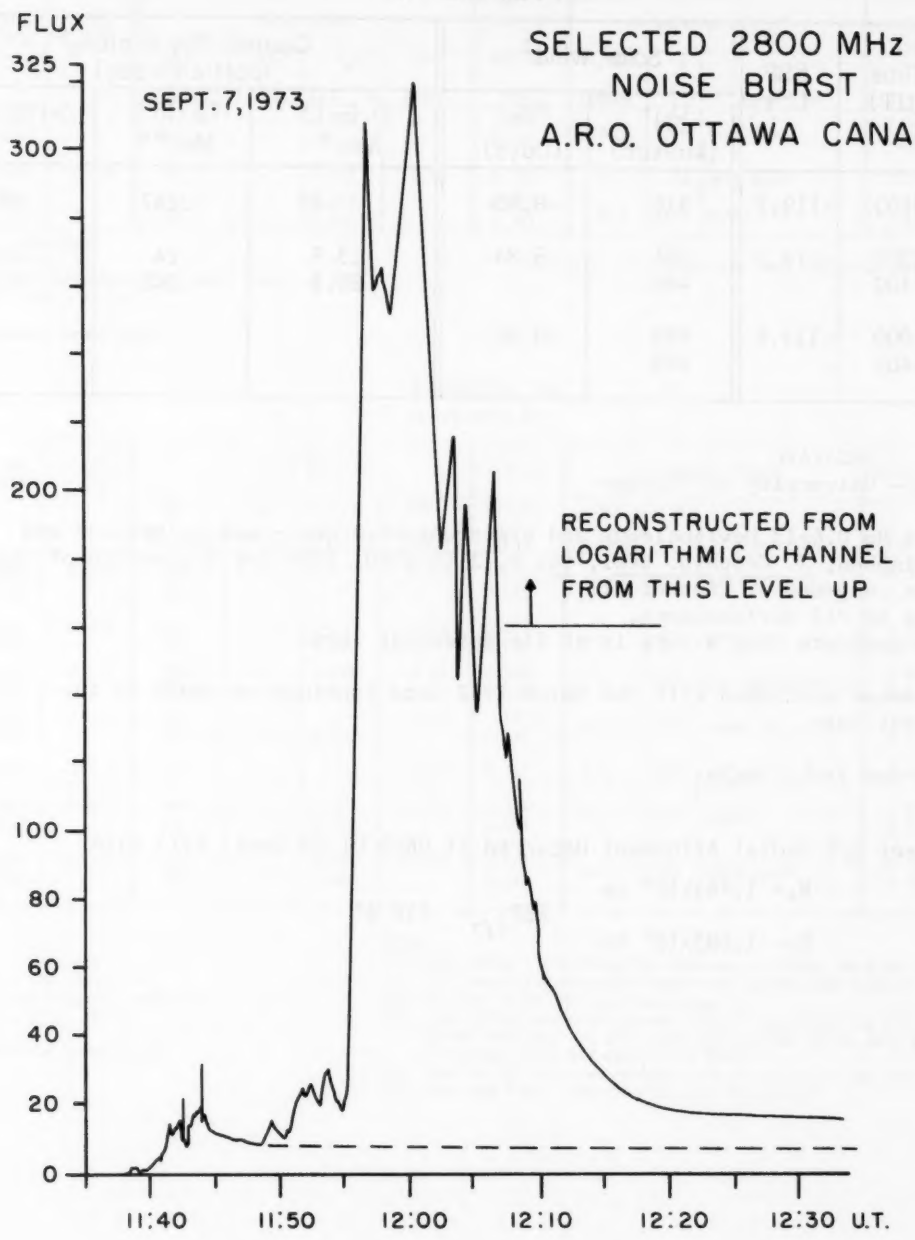
Observatories:

BOUL = Boulder CRON = Carnarvon OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
CANR = Canary Islands MANI = Manila

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURST



PIONEER VI

SEPTEMBER 1973

Date Sep. 1973	Time (UT)	ESP (°)	Solar Wind[1]		Cosmic Ray Protons[2] (particles/sec)		
			U_H^+ (km/sec)	TAU (Days)	0.6-13 Mev*	13-175 Mev**	>175 Mev
1	0100	-119.3	416	-8.83	.45	.247	.85
7	2000	-119.3	506	-8.84	13.6	.24	.938
	2400		448		22.5	.343	.914
19	1000	-119.4	448	-8.82			
	1400		448				

[1] Wolfe - NASA/ARC
[2] Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.
** Includes He >13 Mev/nucleons.
Q used to indicate that a rate is at its quiescent level.

Note: The notes published with the March 1972 data continue to apply to the current data.

ESP = Earth-Sun Probe Angle.

Note: Pioneer 6/7 Radial Alignment Occurred at 0600 UT 20 Sept. 1973 with

$R_6 = 1.445 \times 10^8$ km

$R_7 = 1.683 \times 10^8$ km

$ESP_{6/7} = -119.4°$

PIONEER VIII

SEPTEMBER 1973

DATE Sep. 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>64 Mev
4	0200	115.9	416.0	---	0.083	8.38	0.367	5.0	206	very quiet	7.1	1.36
	0600		407.0	---	---		0.406				7.17	1.2
19	0200	117.8	542.0	---	0.147	8.58	0.356	7.7	143	very quiet	7.27	1.29
	1500		602.0	---	0.277		0.413	6.3	136	quiet (1)	7.13	1.14
	1900		559.0	---	0.299		0.351				6.85	1.33

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Ness - NASA/Goddard & Mariani - Univ. of Roma
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

Note: (1) With one Field Direction Reversal at 1815 UT

PIONEER IX

SEPTEMBER 1973

DATE Sep. 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
5	0300	-041.2	397	---	---	-2.95	0.121	5.2	322	disturbed (1)	6.39	1.31
	0700		370	---	---		0.129				6.44	1.08
7	0600	-041.2	320	---	---	-2.94	0.198	4.2	300	quiet	6.50	1.21
	1000		316	---	0.033		0.140				6.43	1.40
8	0600	-041.2	310	---	0.029	-2.94	0.186	2.1	085	sl. disturbed (2)	4.87	1.42
	1000		297	---	---		0.217				18.6	1.54
9	0600	-041.1	286	---	---	-2.94	.14(3)	36.6(5)	099	quiet (6)	31.8	1.63
	1000		593 (4)	---	0.807		0.252				16.2	--
12	0400	-041.1	437	---	---	-2.99	0.252	6.3	324	quiet	5.7	1.16
19	0200	-040.8	409	---	0.151	-2.99	0.204	14.4	338	quiet	7.9	1.29
	0600		539	---	0.207		0.188				6.95	1.23
26	0200	-040.5	402	---	0.084	-2.98	0.178	4.7	163	very quiet	6.39	--
	0600		393	---	0.057		0.163				6.26	1.21

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

Notes:
(1) With three Field Direction Reversals at 0530, 0600 and 0700 UT
(2) With two Field Direction Reversals at 0900 and 1200 UT
(3) No jump in 400 Hz magnitude noted
(4) Jump in U_{H+} occurred between 0718 UT (U_{H+}=303) and 0743 UT (U_{H+}=585). Quick Look data not available this period due to data gap resulting from spacecraft bit rate of 64 B/sec.
(5) Jump in /B/ occurred between 0718 UT (/B/=6.5) and 0743 UT (/B/=26.5)
(6) With one Field Direction Reversal at 1100 UT

INFERRED IP MAGNETIC FIELD

ROTATION NO.		DAY IN SOLAR ROTATION 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	D 20	T	A	A	A	A	A	A	A	T	T	T	T	-	T	T	T	T	T	T	T	T	T	T	-	T	T	T
1972	J 26	T	A	A	A	A	T	T*	T	T	T	T	T	T	T	T	T	T	A	A	A	T	T	T	T	T	TA	A
1895	F 12	A	T	A	A	A	A	T	T	T	TA	A	-	A	T	T	T	T	TA	A	T	T	T	T	T	TA	A	A
	M 10	A	A	A	A	A	A	A	A	A	A	A	T	A	T	T	T	T	A	A	T	T	T	T	T	T	A	A
	A 6	A	T	T	A	T	T	T	T	T	T	T	T	T	A	T	T	A	A	A	A	A	-	A	A	T	TA	A
	M 3	A	A	A	-	A	T	T	T	T	T	T	T	T	A	A	T	A	A	A	A	A	T	A	T	T	A	T
	M 30	A	A	*	A	A*	T	T	A	T	T	T	A	-	-	-	-	-	T	-	A	A	T	T	T	T	TA	A
1900	J 26	A	A	A	A	A	A	A	AT	T	T	T	TA	A	T	T	A	A	A*	A*	A	T*	T	T	T	T	T	TA
	J 23	A*	A*	A*	A	A	A	A	A*	T	T	A	A	A	-	A	T	T	T	T	T	A	T	T	T	T	A	-
	A 19	-	-	A	A	A	A	A	T	A	A	A	A	T	A	A	A	T	T	T	T	A	A	T	A	A	A	-
	S 15	A	T*	A	A	A	A	A	T	A	A	A	A	-	-	-	-	-	T	T	T	T	T	-	T	A	A	A	T
	O 12	T	-	-	A*	T	T	T	A	A	T	A	A	A	A	A	A	AT	T	AT	T*	T	-	A*	AT	T	T	*	A
1905	N 8	A	A	A	AT	AT	AT	T	T*	A	A	A*	AT	A	A	AT	T	T	TA	T	T	T	A	A	A	A	AT	T
	D 5	T	T	AT	-	-	T	T	AT	-	T	T	A	-	-	T	TA	A	T	T	T	A*	T	T	T	T	AT	T
1973	J 1	T	T	T	T	T	T	T	-	AT	T	-	-	TA	A	A	A	A	A	T	-	-	T	-	T	-	T	T
	J 28	T	A	T	T	T	T	T	T	A	TA	A	A	AT	TA	AT	TA	AT	-	A	A	T	T	T	T	T	T	T
	F 24	T	T	TA	T	T	-	TA	A	A	T	A	A	A	AT	A	A	A	TA	A	A	TA	A	A	T	T	T	T
1910	M 23	T	T	T	A	T	T	T	TA	A	TA	A	A	-	A	A	TA	A	A	AT	T-	-	T	T	T	T	T*	T*
	A 19	T	AT	T-	T	T	T	A	T	T	TA	A	A	A*	A	AT	TA	A*	T	A	TA	T*	AT	A	T	A	T	A*
	M 16	T	T	T	T	T	T	TA	T	A	AT	T	A	A	A	A	A	A*	A	A	A	A	T*	-A	A	-	T	T
	J 12	T*	T	-	T	T*	A	T	T*	T*	T	T	AT	A	A	T	-	T	A	A	A	A*	AT	-	T	A	A	T
	J 9	T	T	A	T	T	A	T*	T*	A	AT	-	A	T	TA	T	T	T	A	A*	A	A*	TA	A	TA	T*	T*	T
1915	A 5	T	A	A	AT	A	T	T*	T	*	AT	T	AT	T	A	TA	T	T	A	A	AT	A*	AT	A	A	TA	A*	A
	S 1	TA*	T	T	AT	A	TA*	A	*	T	T	T	A	A	A	T	T	T	A	T	A	A*	A	T*	A	A	A*	A
	S 28	A*	A	AT	T	A	A	A	A	A*	T*	AT	T	T	T*	T	T*	T*	T	A	T	A*						

Inferred IP Magnetic Field

The table shows daily inferences of the polarity of the interplanetary magnetic field made from magnetograms produced by a tri-axis magnetometer located at the Thule Geopole Station of the Air Weather Service. The inference relies on the discoveries of Mansurov (Geomagn. Aeron., 9, 622-623, 1969) and Svalgaard (Geophys. Pap. R-6, 11 pp., Dan. Meterol. Inst., Copenhagen, 1968) relating the variation of the polar cap magnetic field to the polarity of the interplanetary field. It was originally believed that the radial component (BXM in Geocentric Solar Magnetospheric coordinate system) of the IP field determined the effect observed in the polar cap field, but recent evidence (Friis-Christensen, et al., J. Geophys. Res., 77, 371, 1972) indicate the responsible component may be BYM, the component in the ecliptic plane perpendicular to BXM. As long as the IP field remains in a normal Archimedes spiral, the variation in sign of BYM maps one-to-one with the variation of sign of BXM.

The notation adapted for the table is that BXM>0 (BYM<0) is represented by the symbol A (away from the sun) and BXM<0 (BYM>0) is represented by the symbol T (toward the sun). A day with two polarities indicates that an inferred change of sign occurred during the interval approximately 1200 UT to 2000 UT, when the effect is observable at Thule. An asterisk along with an A or T indicates days when the effect was somewhat doubtful, but one polarity seemed predominant. An asterisk alone indicates days when no clear polarity effect could be discerned. A dash indicates days when missing data prevented inference of the polarity.

SOLAR PROTON EVENT
(PROVISIONAL)

SEPTEMBER 1973

DATE	TIME	DETECTOR	ACTIVITY
SEPT	U.T.		
07	1230Z	Thule 40 MHz Riometer	No absorption
	1245Z	Thule 40 MHz	0.1db
	1315Z	Thule 40 MHz	0.3db
	1415Z	Thule 40 MHz	0.5db
	1420Z	NOAA-2 Satellite:	
		>60 mev	9 protons $cm^{-2}sec^{-1}ster^{-1}$ (approximate maximum)
		>30 mev	11 protons $cm^{-2}sec^{-1}ster^{-1}$
		>10 mev	20 protons $cm^{-2}sec^{-1}ster^{-1}$
	1520Z	NOAA-2:	
		>60	7
		>30	14 (approximate maximum)
		>10	20
	1530Z	Thule 40 MHz	0.7db
	1620Z	NOAA-2:	
		>60	7
		>30	14
		>10	26 (approximate maximum)
	1630Z	Thule 40 MHz	0.9db (approx. maximum)
	2000Z	Thule 40 MHz	0.5db
	2345Z	Thule 40 MHz	0.3db

AUGUST 1973 DATA

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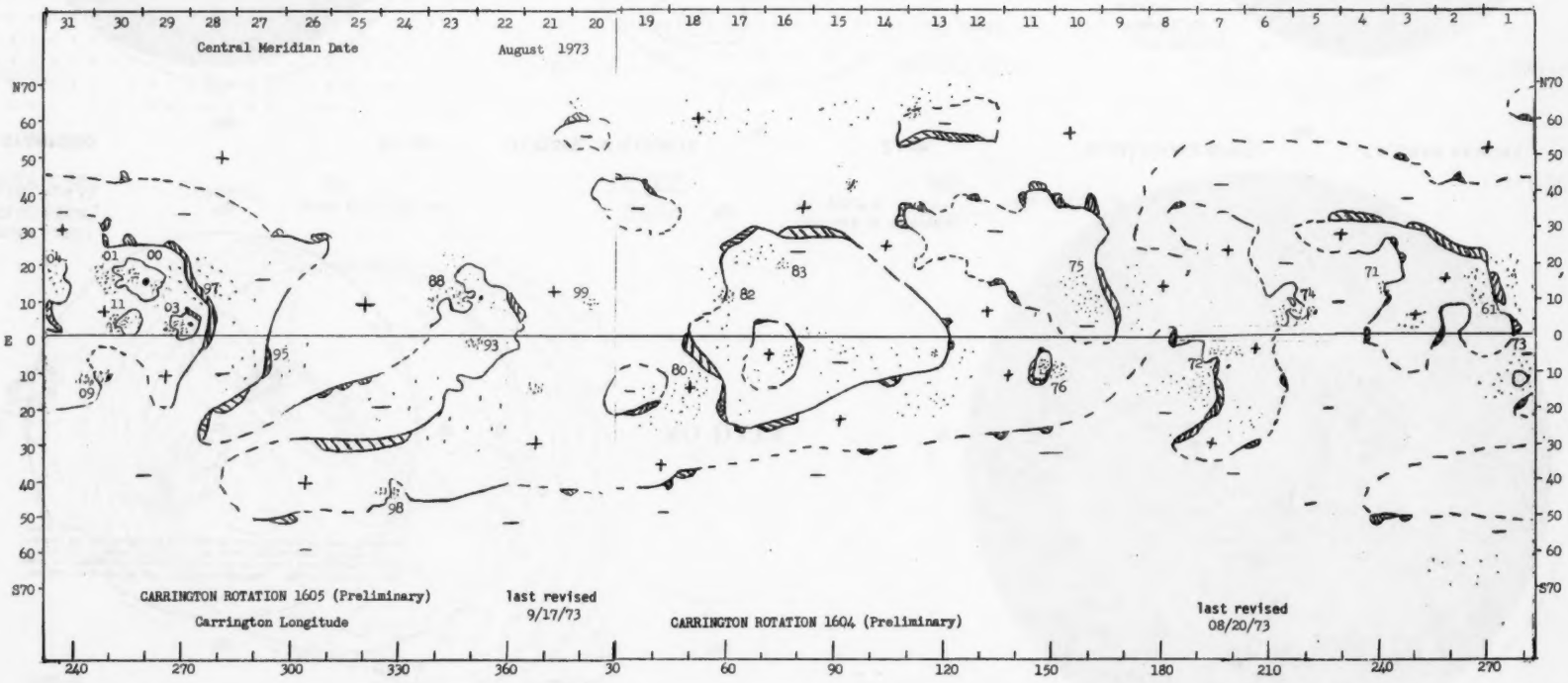
For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

Hα SYNOPTIC CHARTS

AUGUST 1973



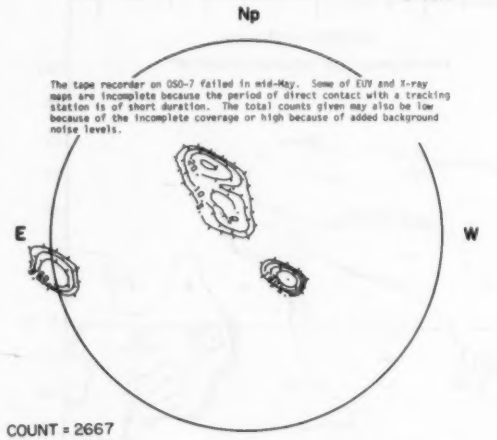
27 Aug 73

AUGUST 1, 1973 (P = 10.78, B_o = 5.80, L_o = 282.34)

28 Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



The tape recorder on OSO-7 failed in mid-May. Some of EUV and X-ray maps are incomplete because the period of direct contact with a tracking station is of short duration. The total counts given may also be low because of the incomplete coverage or high because of added background noise levels.

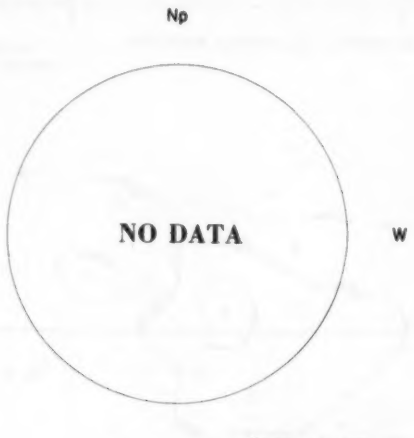
COUNT = 2667
ROLL = 33.2°
P-TH = -4.33

0600 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



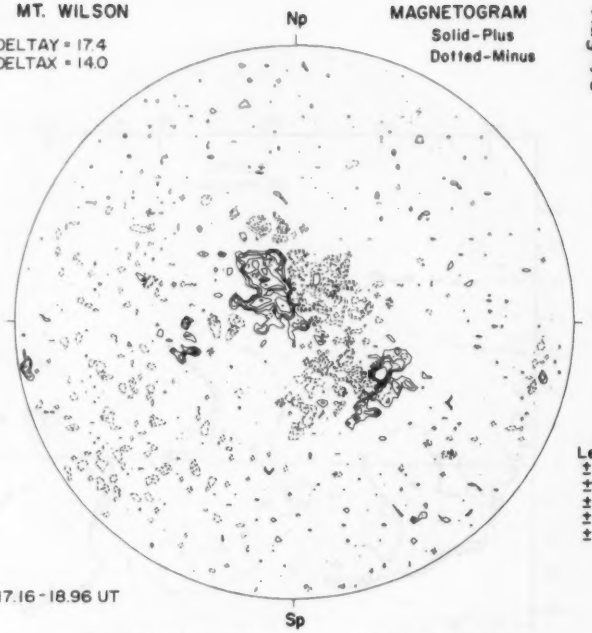
NO DATA

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

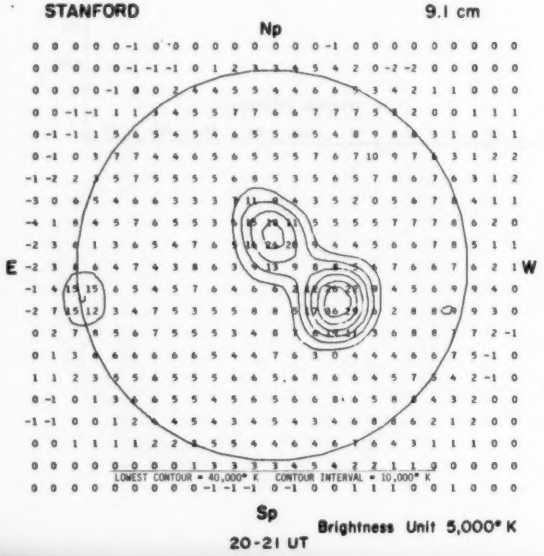


Levels
±5
±10
±20
±40
±80

17.16-18.96 UT

STANFORD

9.1 cm



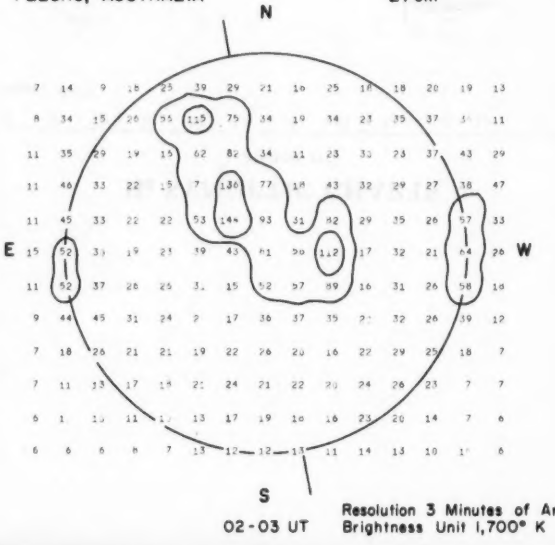
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

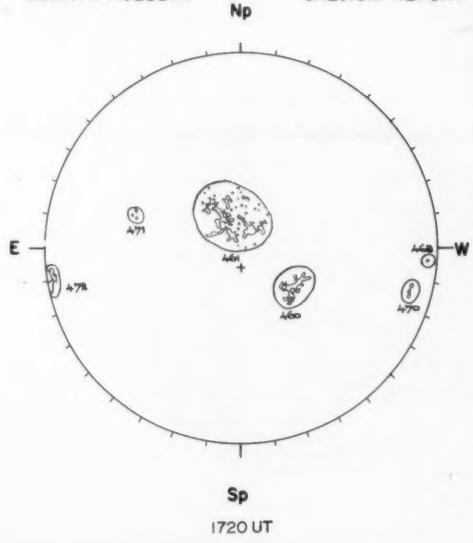


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



POOR	M
60 - 1100	-3.0
61 - 2000	-2.5
72 - 1300	-2.5

1720 UT

BOULDER
O-I

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

TV SCAN

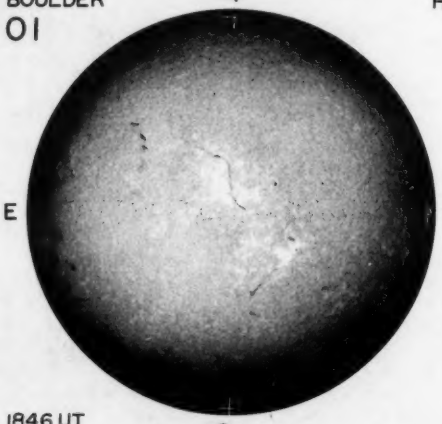
Np

20-21 UT

BOULDER
01

Np

Hα



E

W

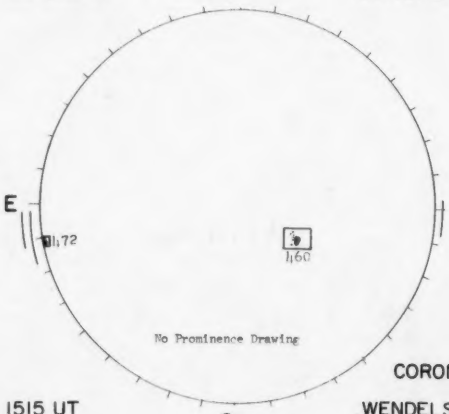
1846 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1515 UT

Sp

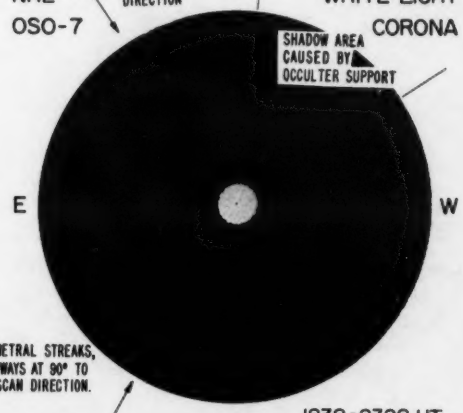
CORONA
WENDELSTEIN

NRL
OSO-7

TV SCAN DIRECTION

Np

WHITE-LIGHT
CORONA



E

W

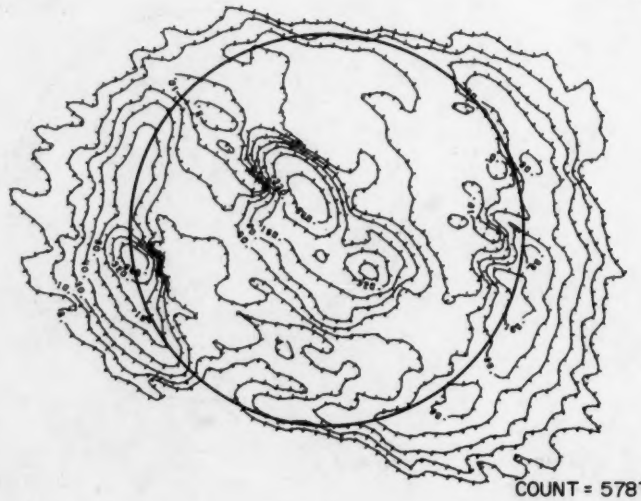
Sp

1838-2328 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT = 57878
ROLL = 33.2°
P-TH = -4.33

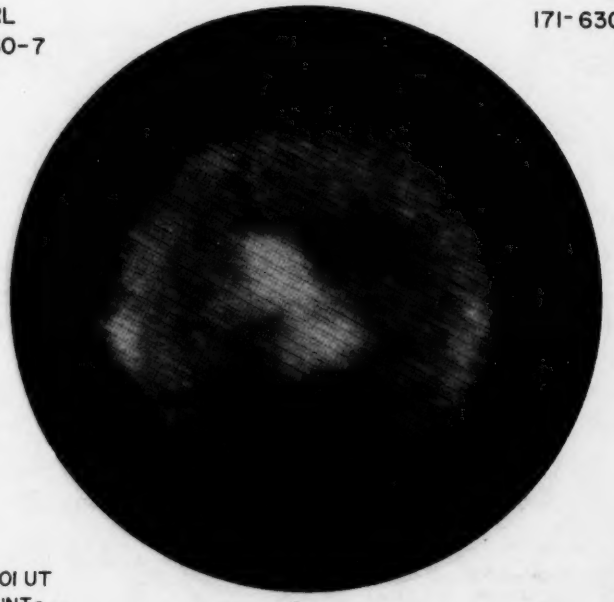
0600 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0601 UT
COUNT = --

Sp

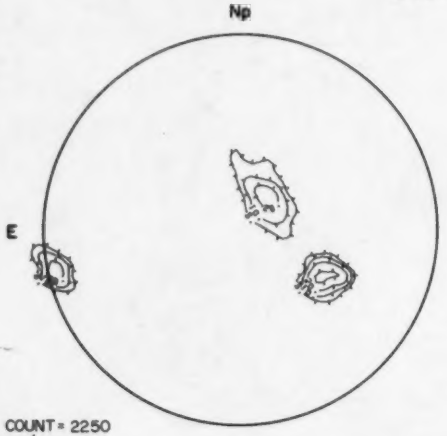
29
Aug 73

AUGUST 2, 1973 (P = 11.18, B_o = 5.87, L_o = 269.12)

30 Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2250
ROLL = 32.9°
P-TH = -4.24

0458 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

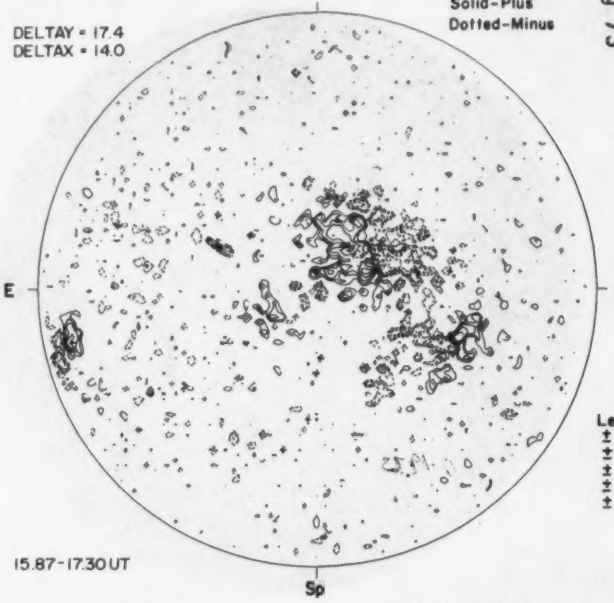
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

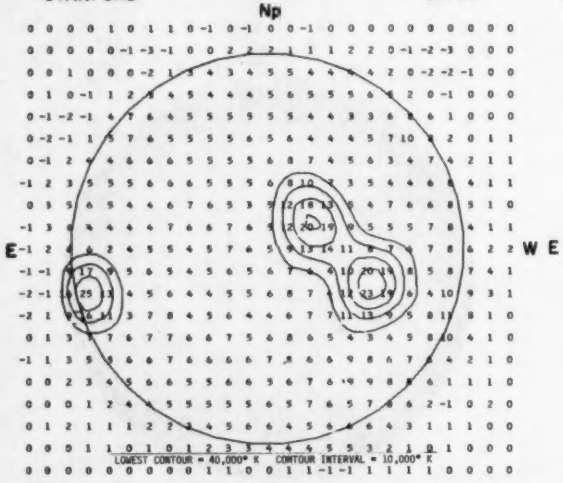


Levels
±5
±10
±20
±40
±80

15.87-17.30 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

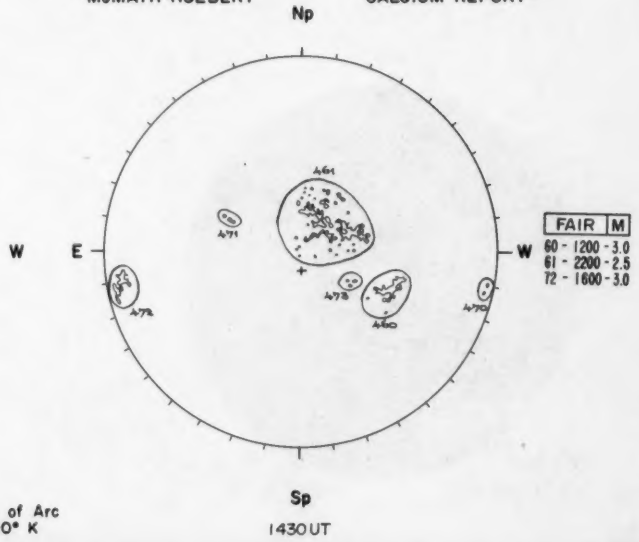
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

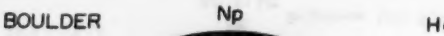
McMATH-HULBERT

CALCIUM REPORT



1430 UT

BOULDER

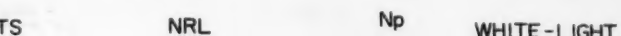


Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT

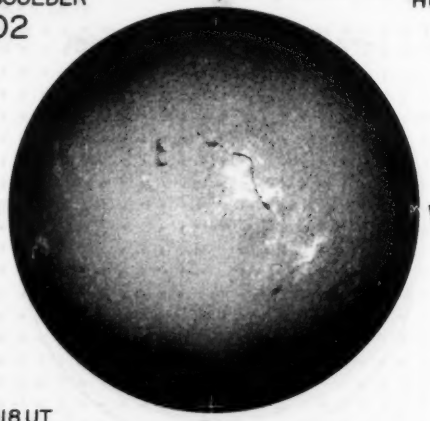
02-03 UT Brightness Unit 1,700° K

1430 UT

BOULDER
02

Np

Hα



E

W

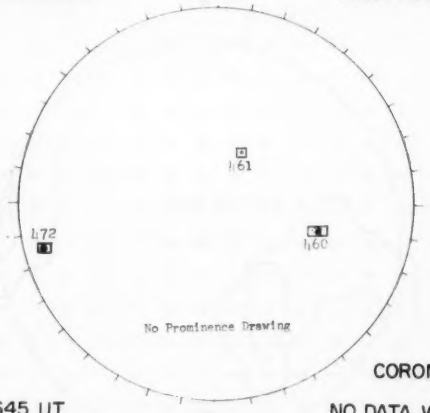
Sp

1818 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1645 UT

CORONA

NO DATA W LIMB

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

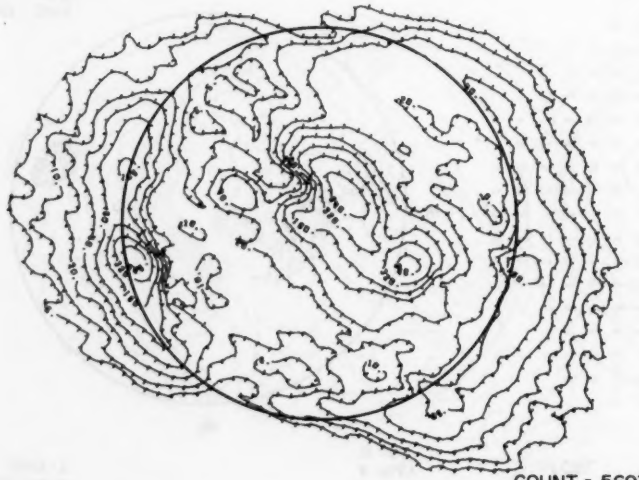
Sp

1908-2358 UT

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 56973
ROLL = 32.9°
P-TH = -4.24

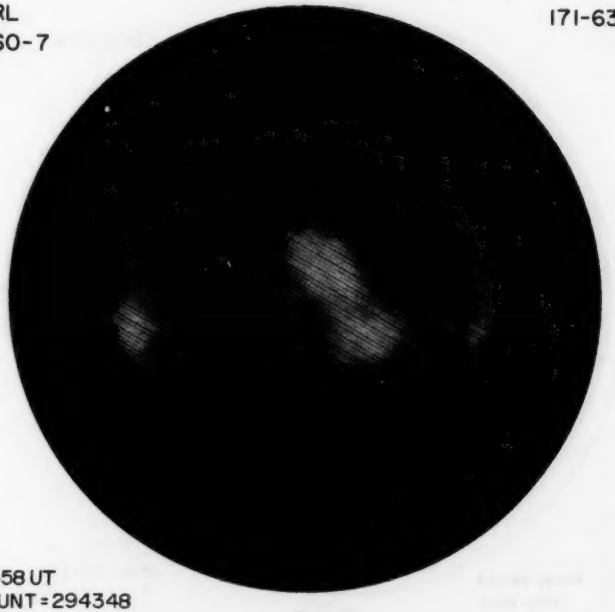
0458 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0458 UT
COUNT = 294348

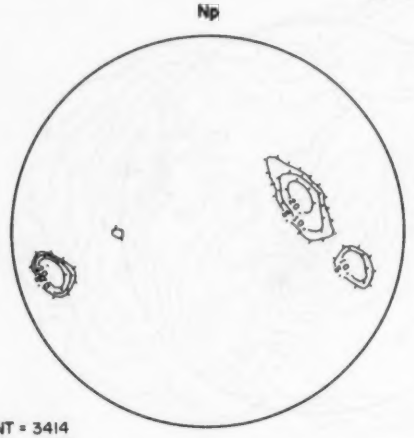
Sp

31
Aug 73

AUGUST 3, 1973 (P = 11.57, B_o = 5.94, L_o = 255.89)

NASA GSFC
OSO-7

X-RAY
8-16A



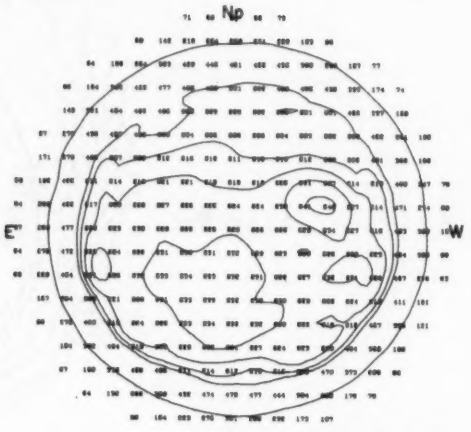
COUNT = 3414
ROLL = 32.3°
P-TH = -4.08

1803 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



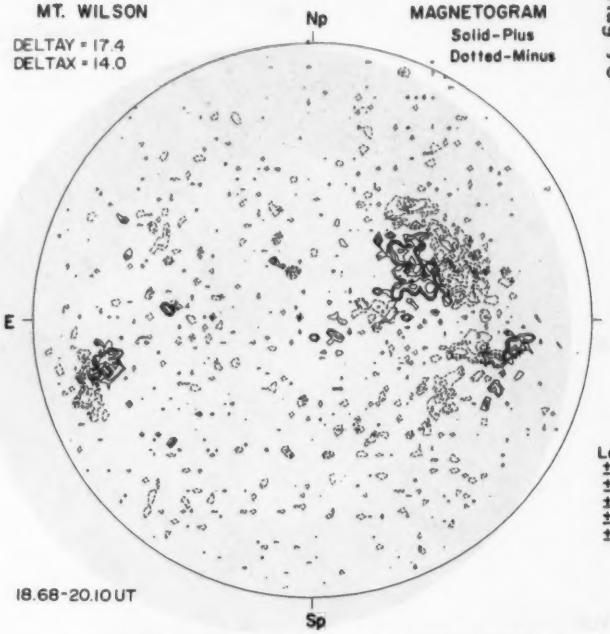
1640 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

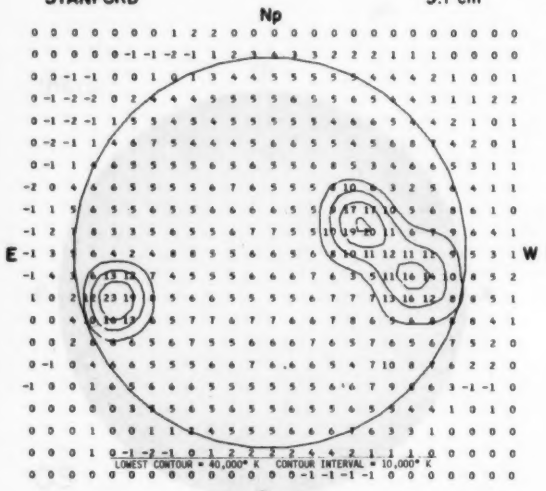


Levels
±5
±10
±20
±40
±80

18.68-20.10 UT

STANFORD

9.1 cm

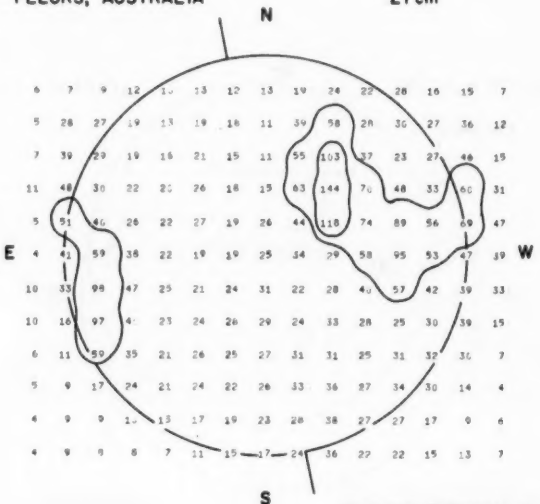


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

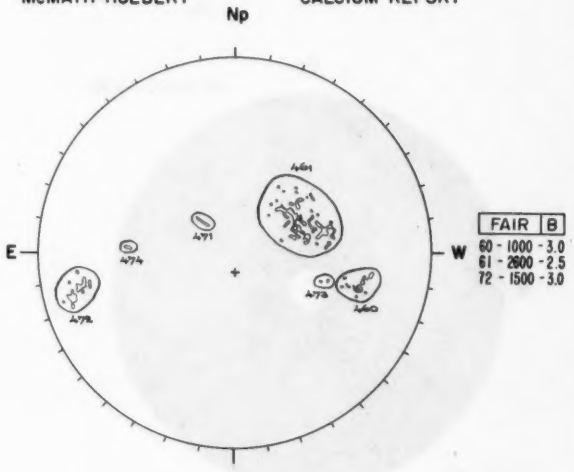


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1230 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

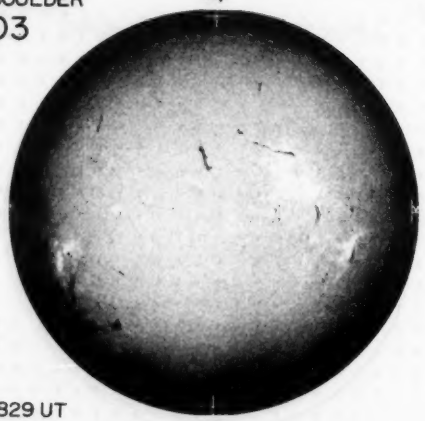
NRL

WHITE-LIGHT

BOULDER
03

Np

Hα



E

W

Sp

1829 UT

BOULDER

Np

SUNSPOTS

E

W

Sp

CORONA

SAC PEAK

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

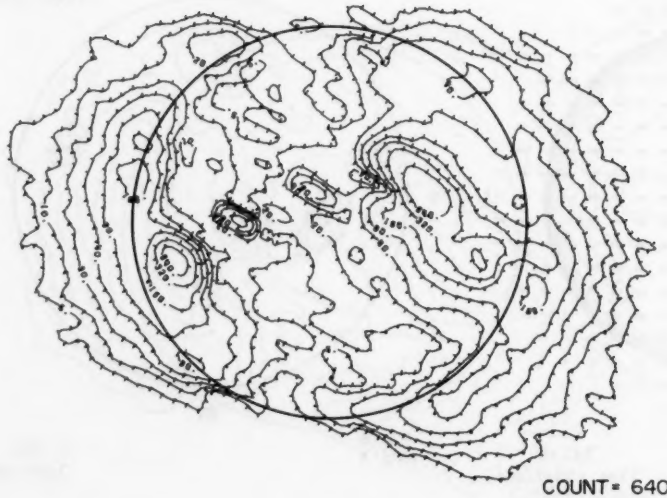
Sp

1937-2427 UT

NASA GSFC
OSO-7

Np

FE XV
284 A



E

W

Sp

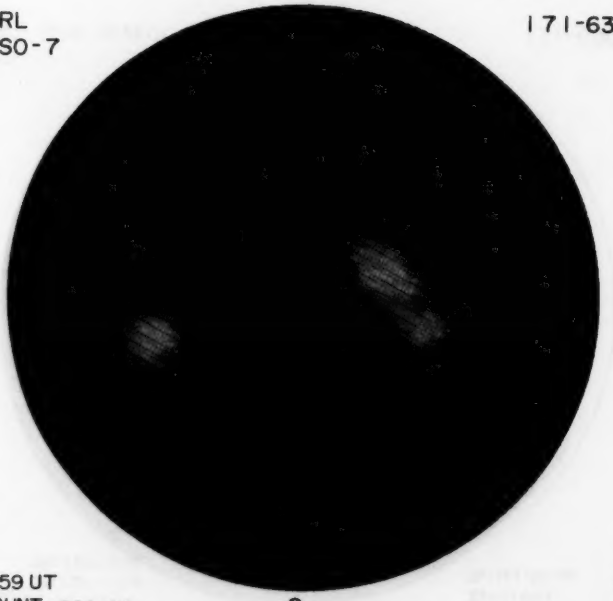
1803 UT

COUNT = 64089
ROLL = 32.3°
P-TH = -4.08

Np

NRL
OSO-7

171-630A



E

W

Sp

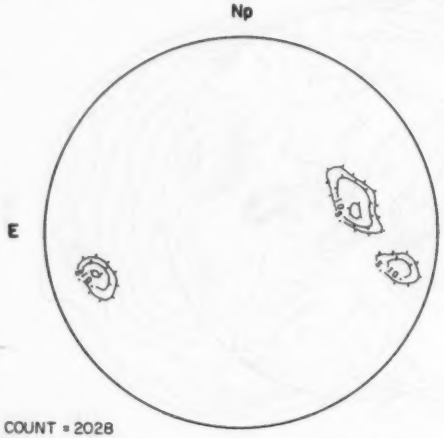
1759 UT
COUNT = 262190

33
Aug 73

AUGUST 4, 1973 (P = 11.96, B_o = 6.01, L_o = 242.67)

NASA GSFC
OSO-7

X-RAY
8-16A



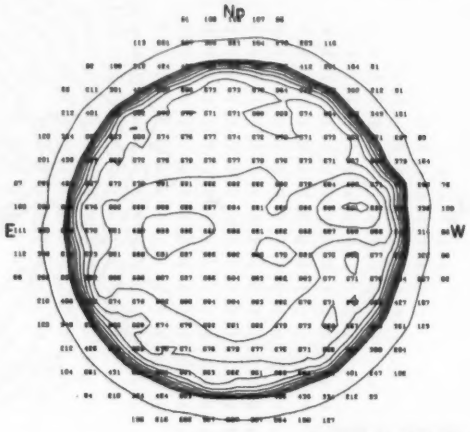
COUNT = 2028
ROLL = 32.1°
P-TH = -4.04

0419 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



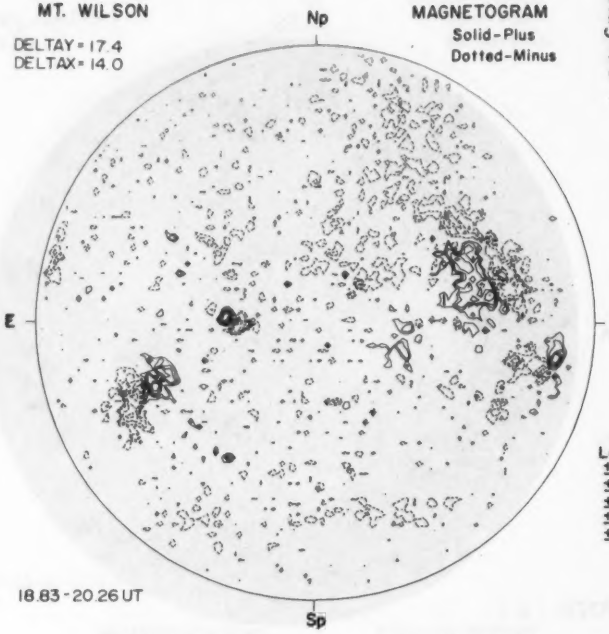
1701 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

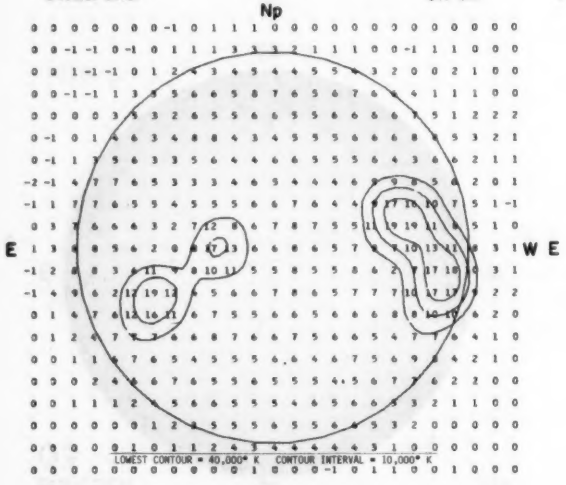


Levels
± 5
± 10
± 20
± 40
± 80

18.83 - 20.26 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

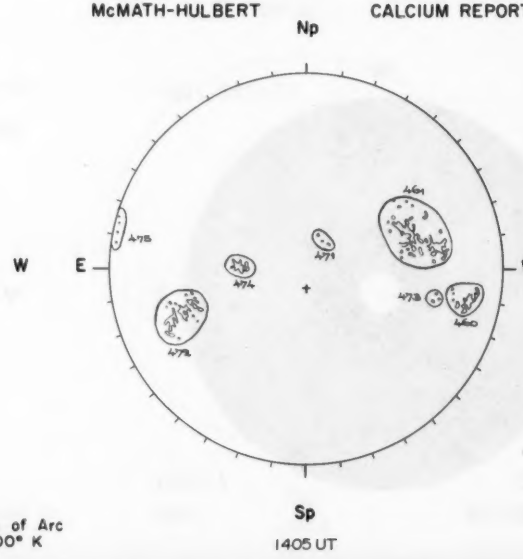
S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	M
60 - 1000	- 3.0
72 - 1500	- 3.0
74 - 0500	- 3.5

1405 UT

BOULDER

BOULDER

SUNSPOTS

NRL

WHITE LIGHT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

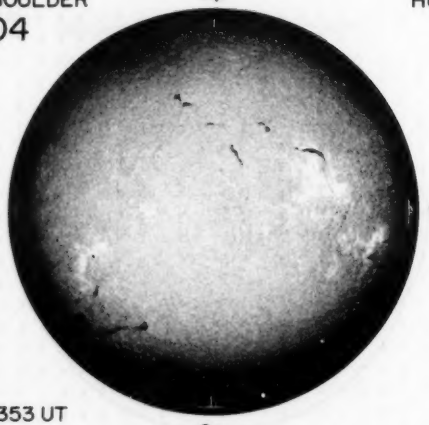
Brightness Unit 1,700° K

1405 UT

BOULDER
04

Np

Hα



E

W

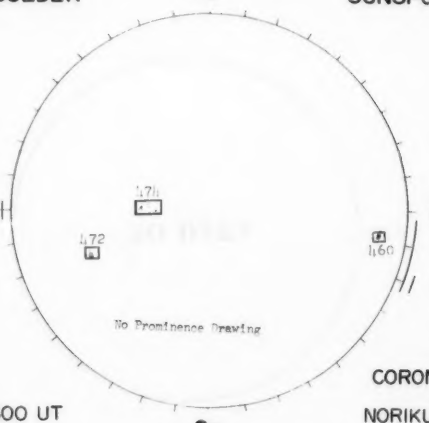
1353 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

1600 UT

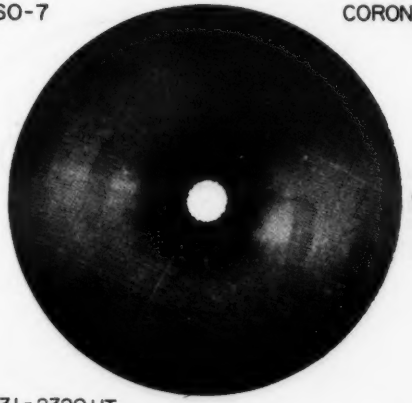
NORIKURA

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

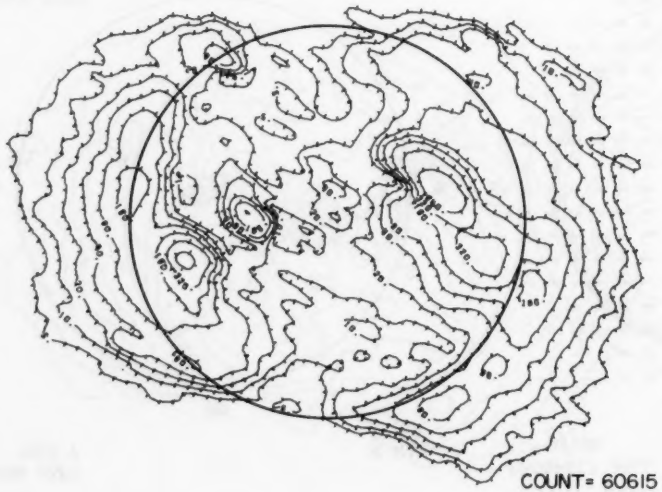
1831-2320 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT= 60615
ROLL = 32.1°
P-TH = -4.04

0419 UT

Sp

NRL
OSO-7

Np

171-630A

E

W

1652 UT
COUNT=246157

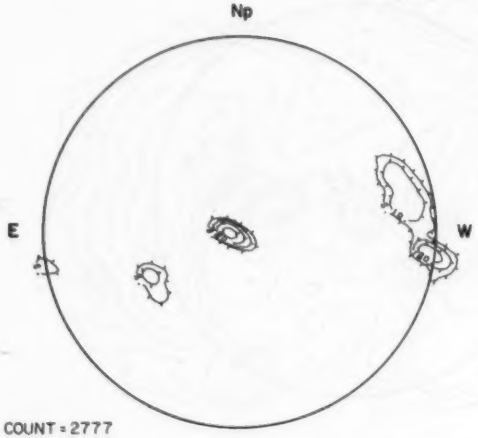
Sp

35
Aug 73

AUGUST 5, 1973 (P = 12.35, B_o = 6.08, L_o = 229.45)

NASA GSFC
OSO-7

X-RAY
8-16A



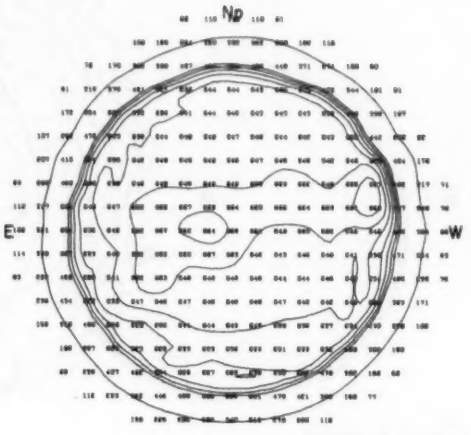
COUNT = 2777
ROLL = 31.6°
P-TH = -3.89

1544 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



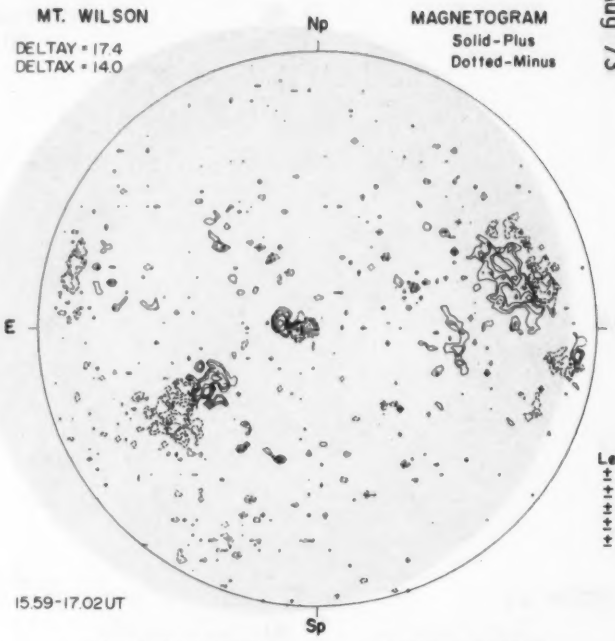
1525 UT

Contours in intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

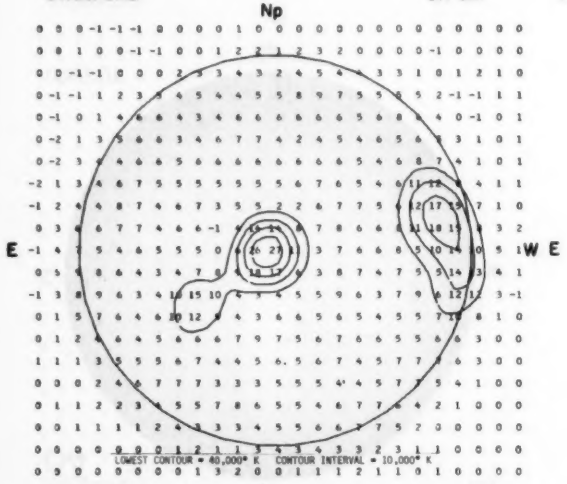


Levels
±5
±10
±20
±40
±80

15.59-17.02 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

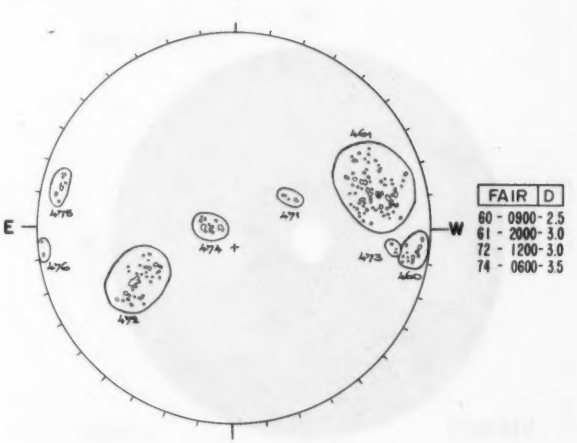
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1215 UT

BOULDER

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

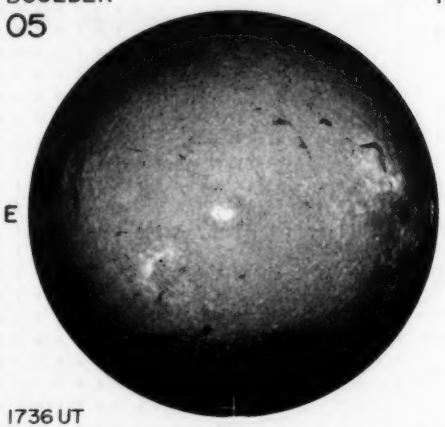
Resolution 5 Minutes of Arc
Brightness Unit 1,700° K

1215 UT

BOULDER
05

Np

Hα



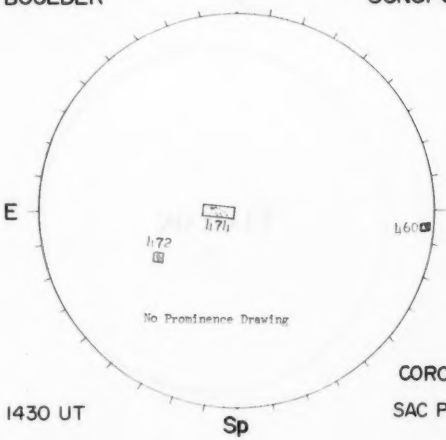
1736 UT

Sp

BOULDER

Np

SUNSPOTS



1430 UT

Sp

CORONA
SAC PEAK

NRL
OSO-7

WHITE-LIGHT
CORONA

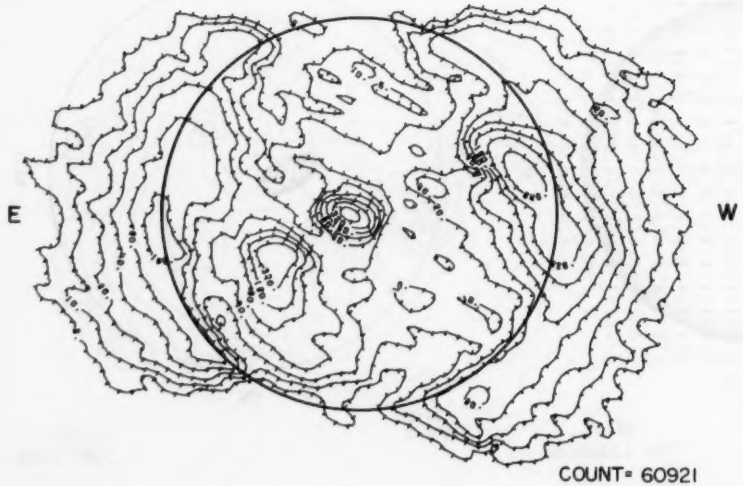
1722-2212 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT= 60921
ROLL = 31.6°
P-TH = -3.89

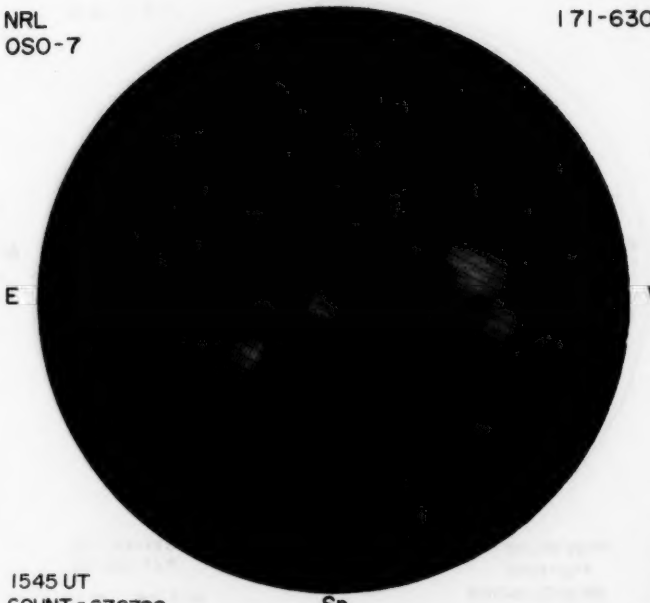
1544 UT

Sp

Np

NRL
OSO-7

171-630A



1545 UT
COUNT = 272728

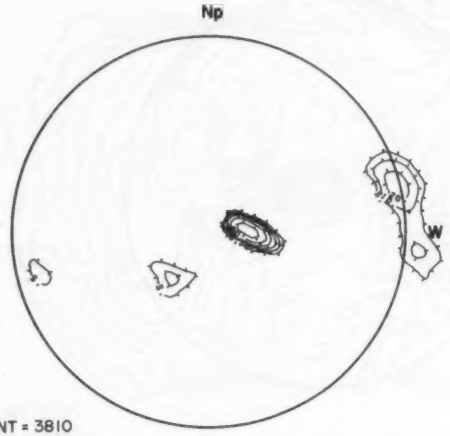
Sp

37
Aug 73

AUGUST 6, 1973 (P=12.73, B_o=6.14, L_o=216.22)

NASA GSFC
OSO-7

X-RAY
8-16A



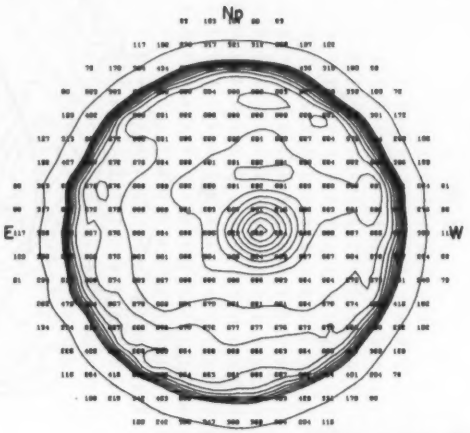
COUNT = 3810
ROLL = 31.3°
P-TH = -3.78

1616 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



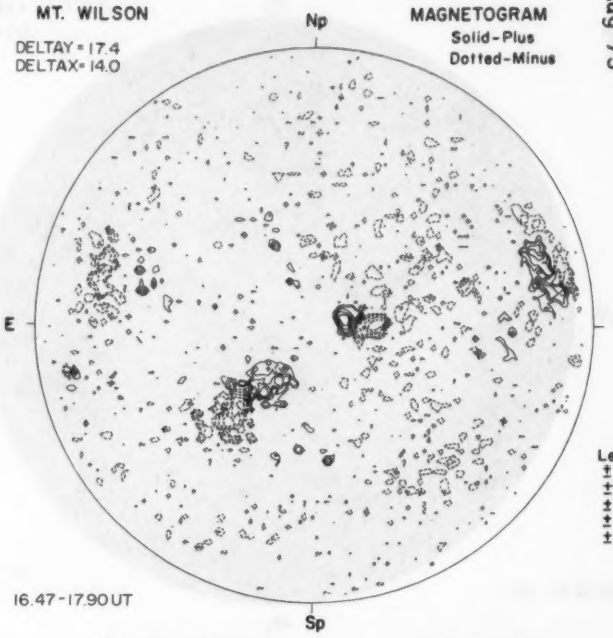
1446 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

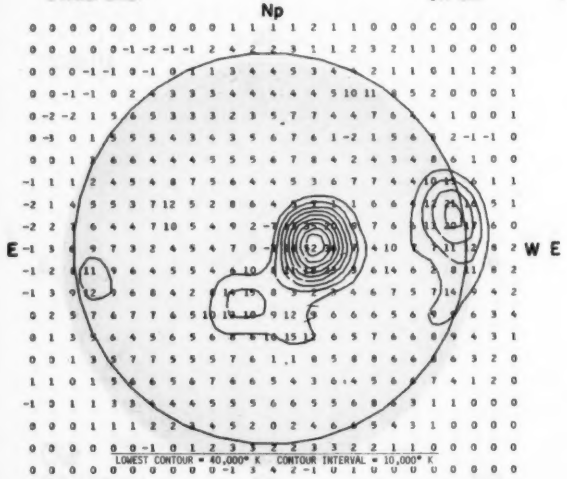


Levels
±5
±10
±20
±40
±80

16.47-17.90 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

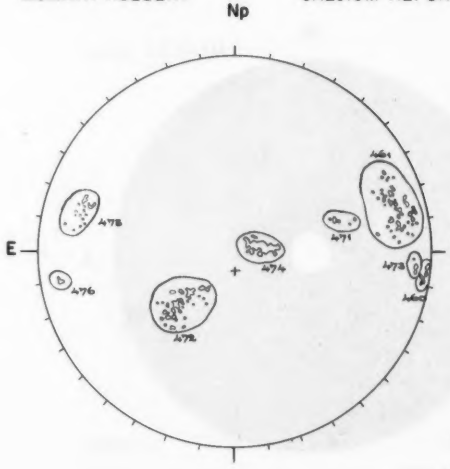
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

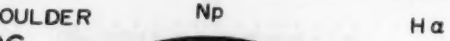
McMATH-HULBERT

CALCIUM REPORT



1350 UT

BOULDER

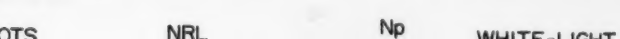


Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

Sp
20-21 UT
Brightness Unit 5,000° K

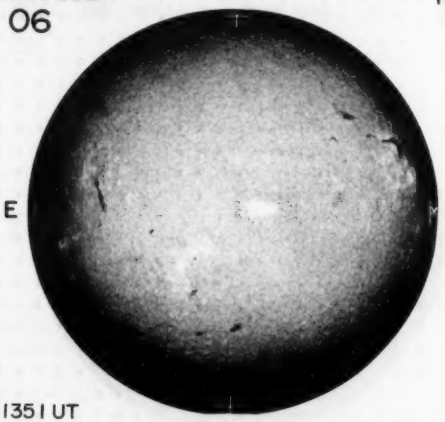
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1350 UT

BOULDER
06

Np

Hα



E

W

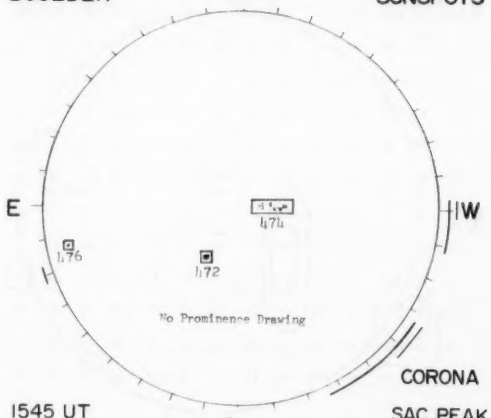
1351 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

1545 UT

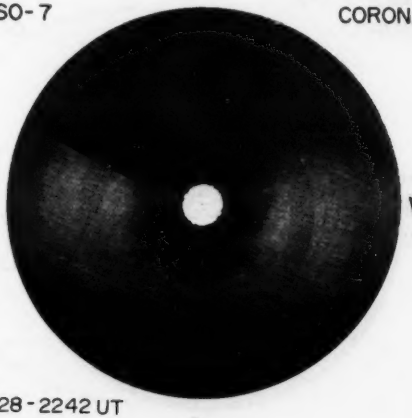
SAC PEAK

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

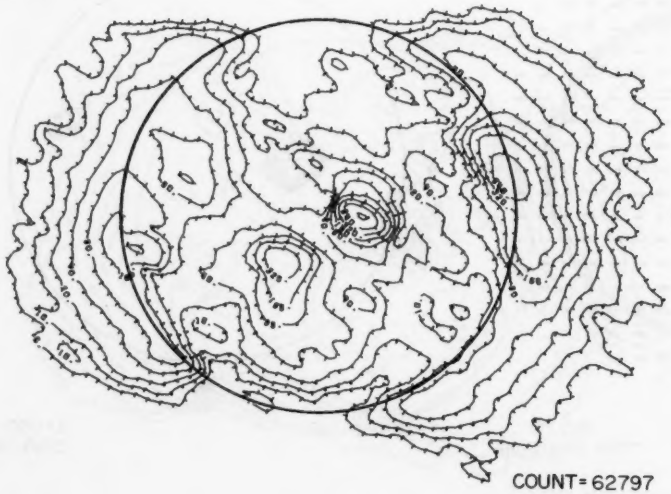
1928-2242 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT= 62797
ROLL = 31.3°
P-TH = -3.78

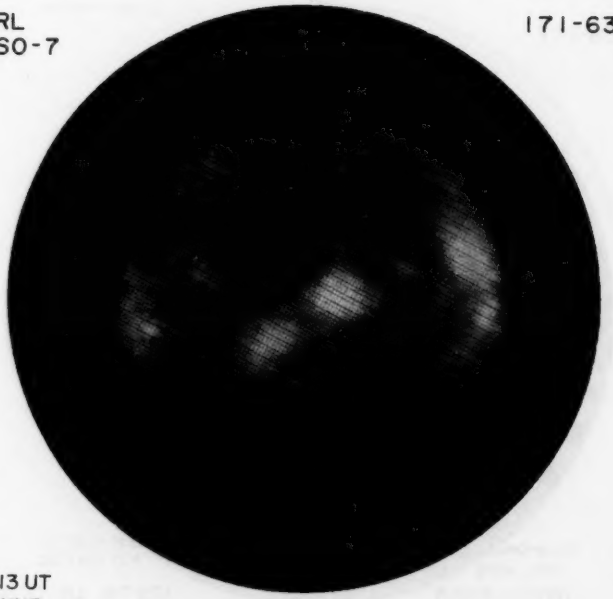
1616 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

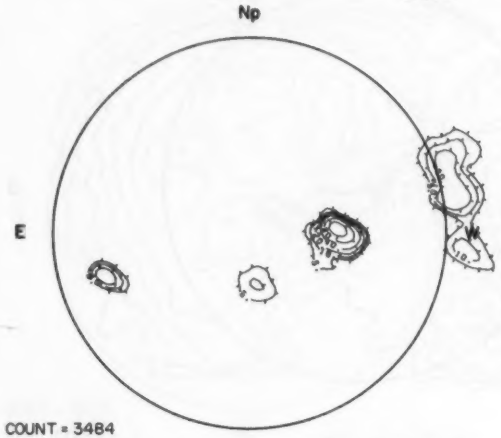
1613 UT
COUNT= --

Sp

AUGUST 7, 1973 (P=13.11, B_o=6.21, L_o=203.00)

NASA GSFC
OSO-7

X-RAY
8-16A



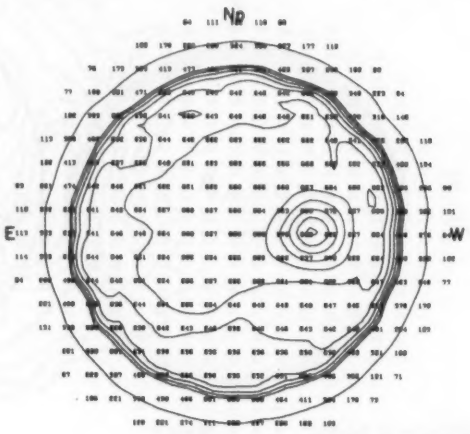
COUNT = 3484
ROLL = 31.0°
P-TH = -3.68

1506 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



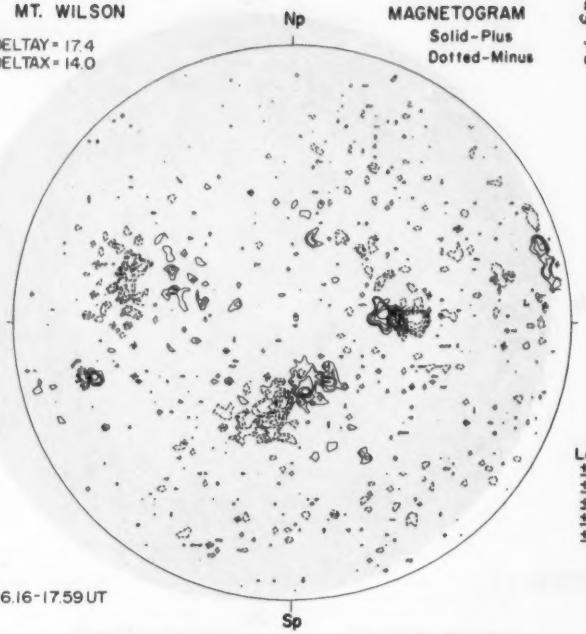
1452 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

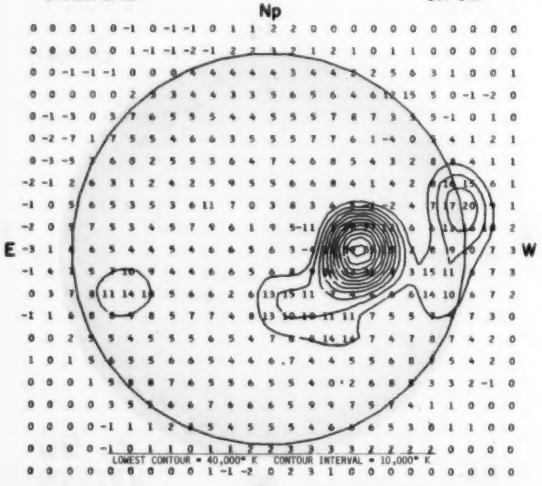


Levels
±5
±10
±20
±40
±80

16.16-17.59 UT

STANFORD

9.1 cm



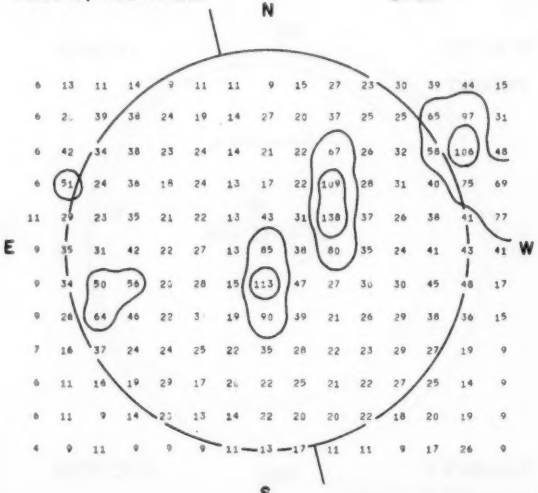
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

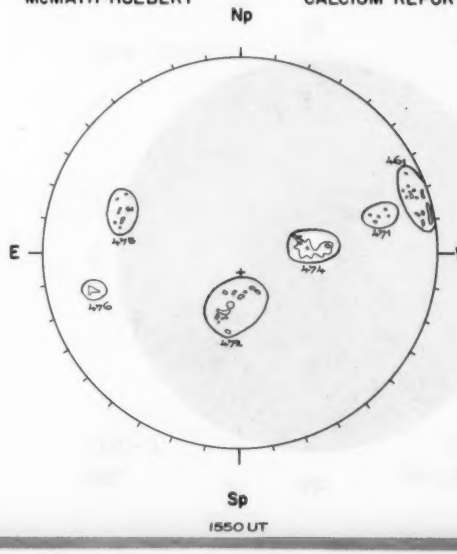


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	M
72 - 1300	- 2.5
74 - 1700	- 4.5
76 - 0400	- 3.0

1550 UT

Sp
20-21 UT

Brightness Unit 5,000° K

3
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1550 UT

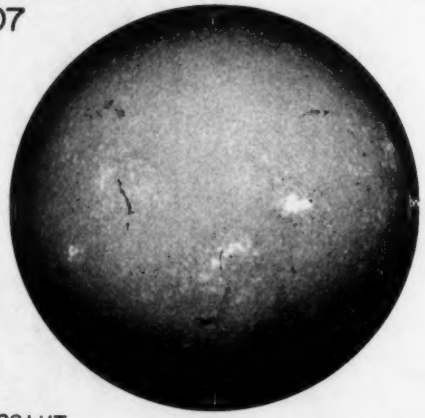
BOULDER
07

Np

Hα

E

W



1821 UT

Sp

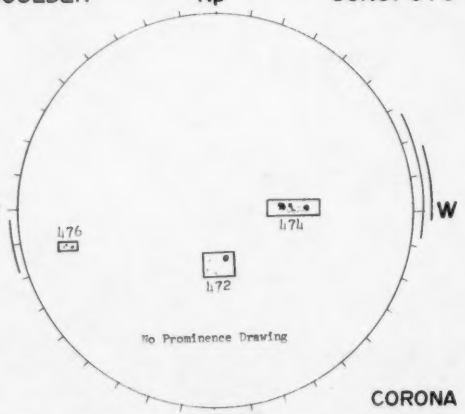
BOULDER

Np

SUNSPOTS

E

W



CORONA
SAC PEAK

1350 UT

Sp

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

1644-2134 UT

Sp

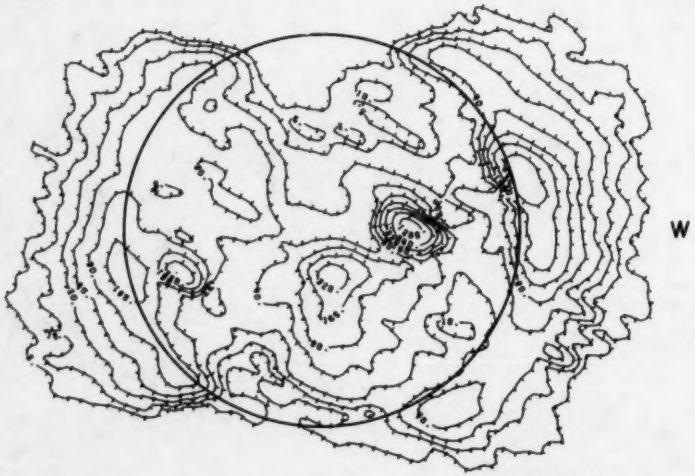
NASA GSFC
OSO-7

Np

FE XV
284A

E

W



COUNT = 65892
ROLL = 31.0°
P-TH = -3.68

1506 UT

Sp

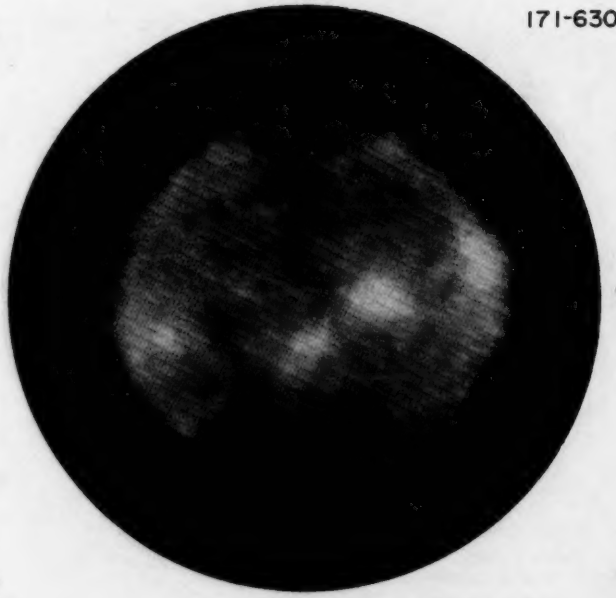
Np

NRL
OSO-7

171-630A

E

W



1506 UT
COUNT = --

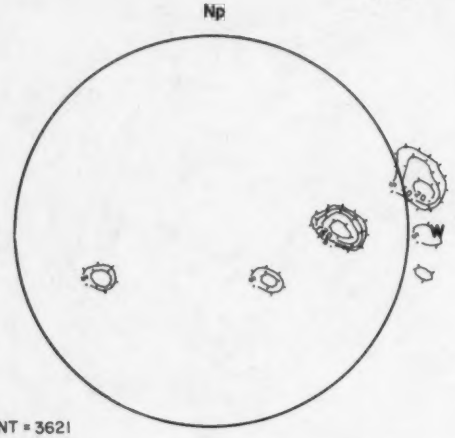
Sp

41
Aug 73

AUGUST 8, 1973 (P=13.48, B_o=6.27, L_o=189.78)

NASA GSFC
OSO-7

X-RAY
8-16A



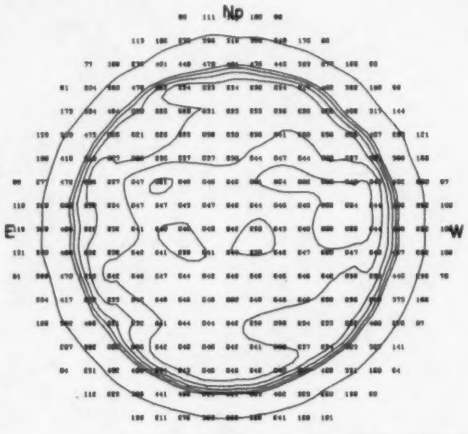
COUNT = 3621
ROLL = 30.7°
P-TH = -3.58

1357 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



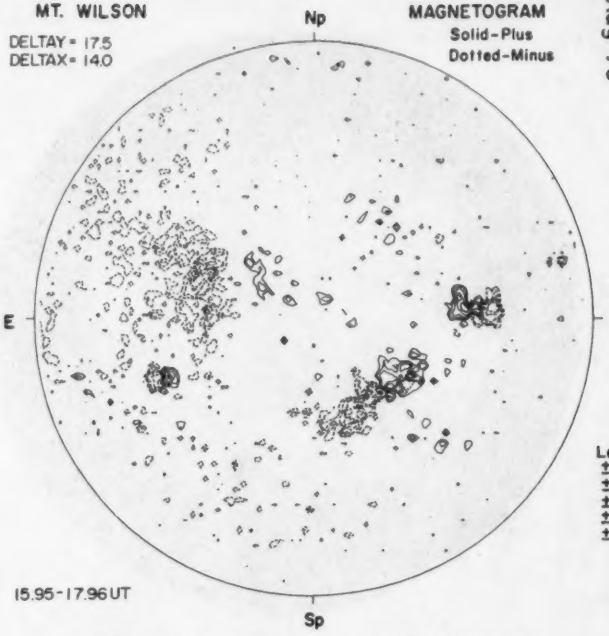
1452 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

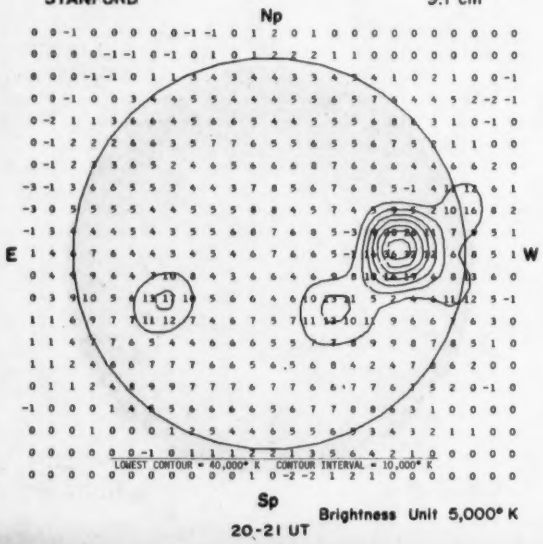


Levels
±5
±10
±20
±40
±80

15.95-17.96 UT

STANFORD

9.1 cm



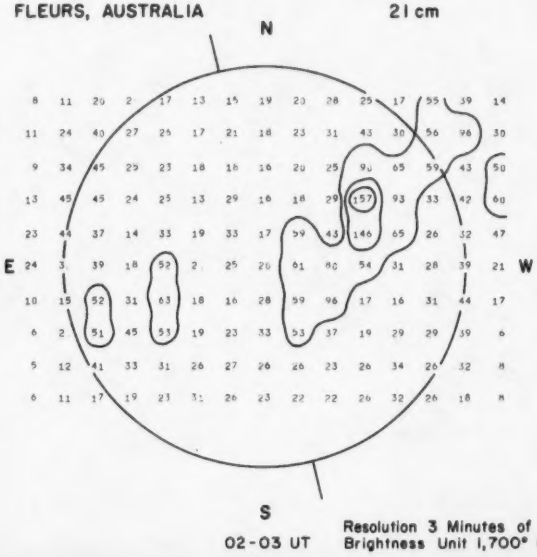
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

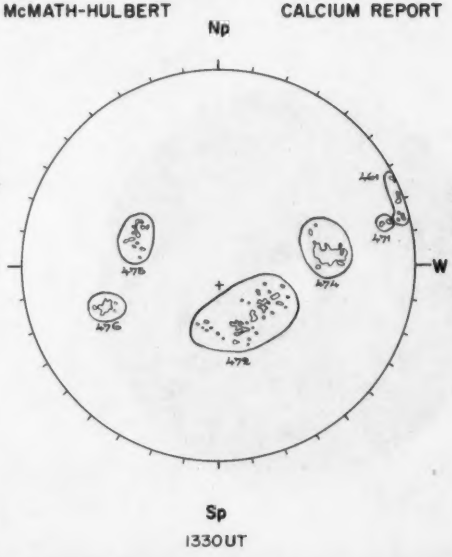


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



POOR	B
71 - 0300	- 2.5
72 - 1500	- 3.0
74 - 1900	- 4.0
76 - 0700	- 3.0

1330 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

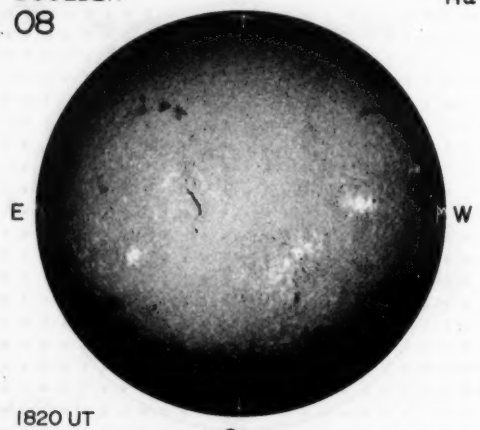
NRL

WHITE-LIGHT

BOULDER
08

Np

Hα



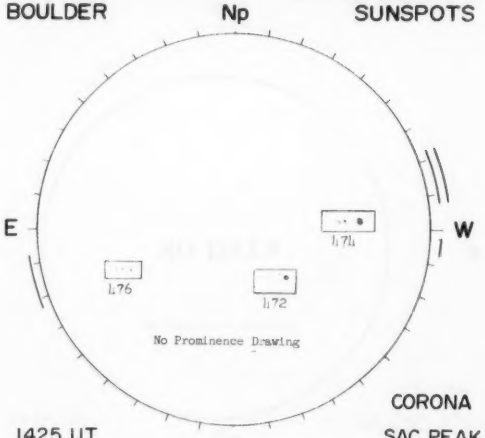
1820 UT

Sp

BOULDER

Np

SUNSPOTS



1425 UT

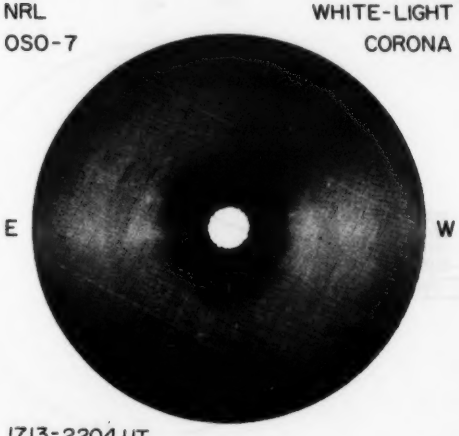
Sp

CORONA

SAC PEAK

NRL
OSO-7

WHITE-LIGHT
CORONA



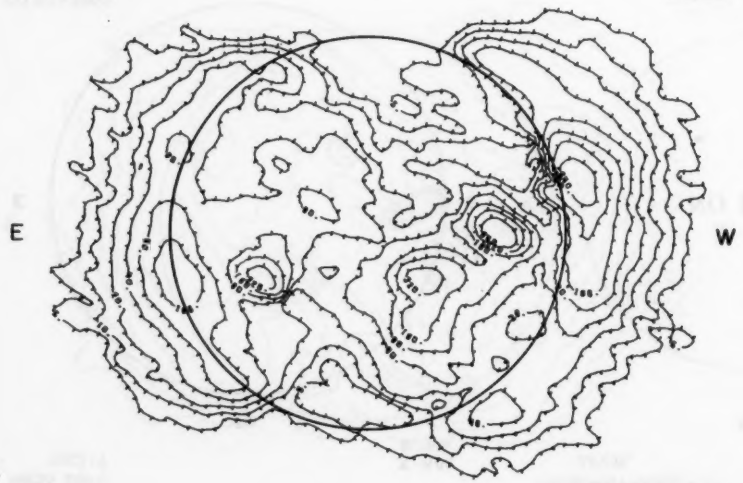
1713-2204 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT = 69858
ROLL = 30.7°
P-TH = -3.58

1357UT

Sp

Np

NRL
OSO-7

171-630A

1534 UT
COUNT = 234519

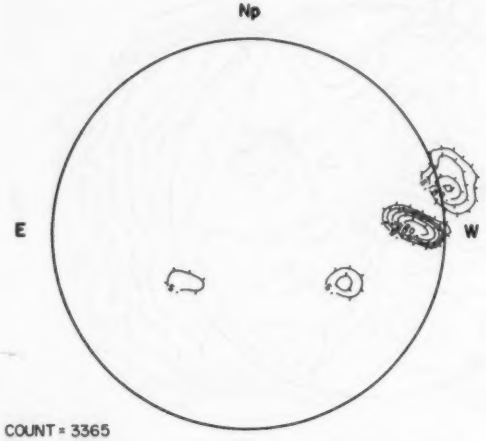
Sp

43
Aug 73

AUGUST 9, 1973 (P = 13.85, B_o = 6.33, L_o = 176.56)

NASA GSFC
OSO-7

X-RAY
8-16A



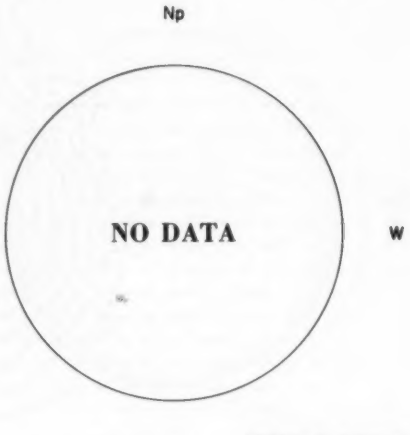
COUNT = 3365
ROLL = 30.0°
P-TH = -3.47

1427 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

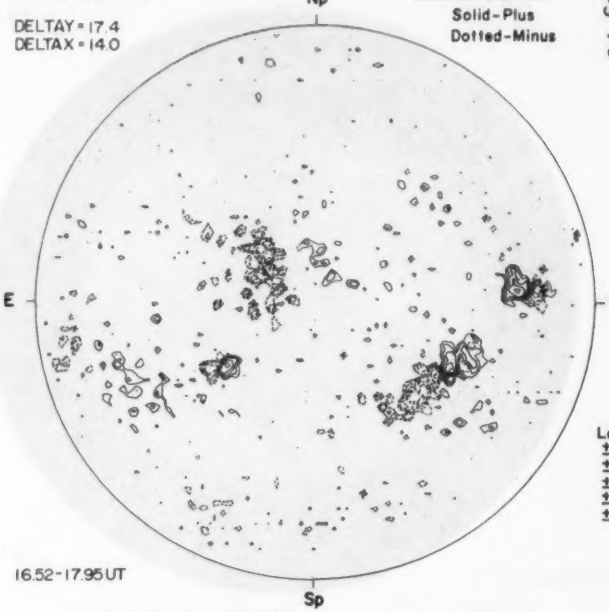


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

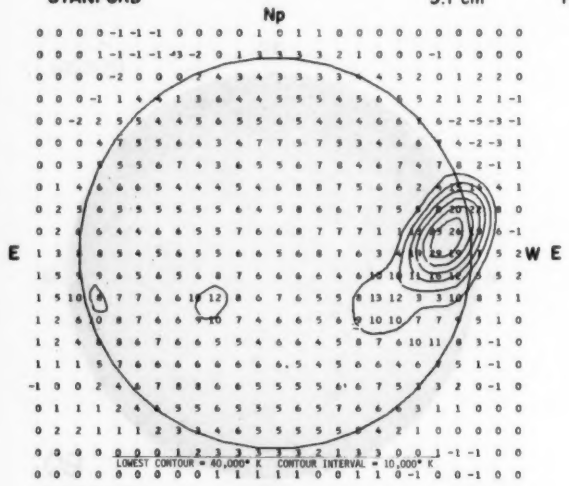


Levels
±5
±10
±20
±40
±80

16.52-17.95 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

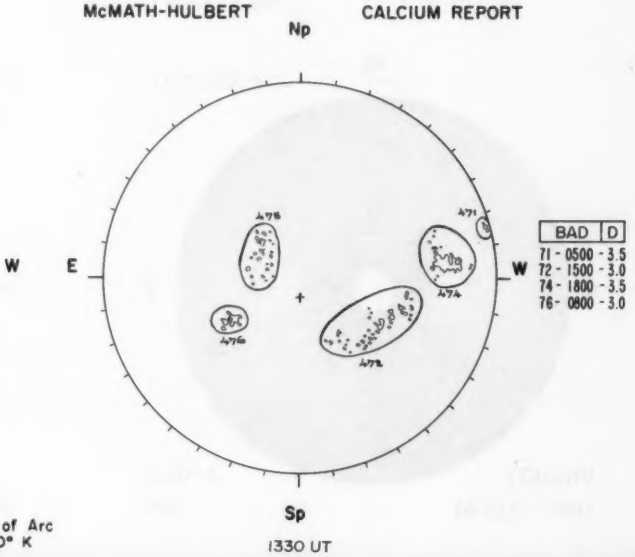
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



BAD	D
71 - 0500	- 3.5
72 - 1500	- 3.0
74 - 1800	- 3.5
76 - 0800	- 3.0

1330 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

Np

WHITE-LIGHT

20-21 UT

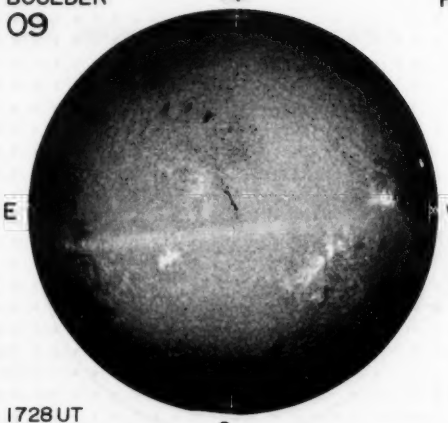
02-03 UT Brightness Unit 1,700° K

1330 UT

BOULDER
09

Np

Hα



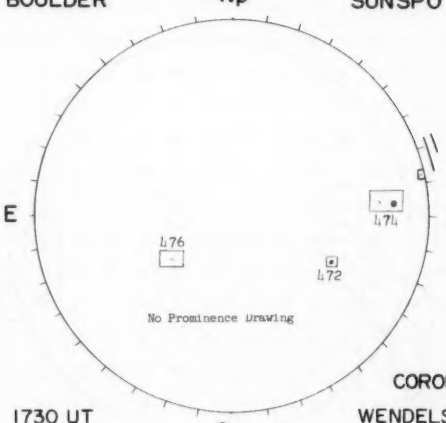
1728 UT

Sp

BOULDER

Np

SUNSPOTS



1730 UT

Sp

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

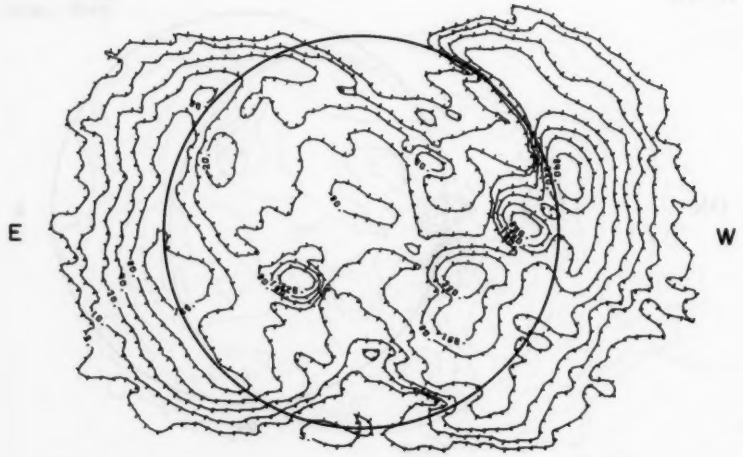
1606-2056 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT= 66335
ROLL = 30.0°
P-TH = -3.47

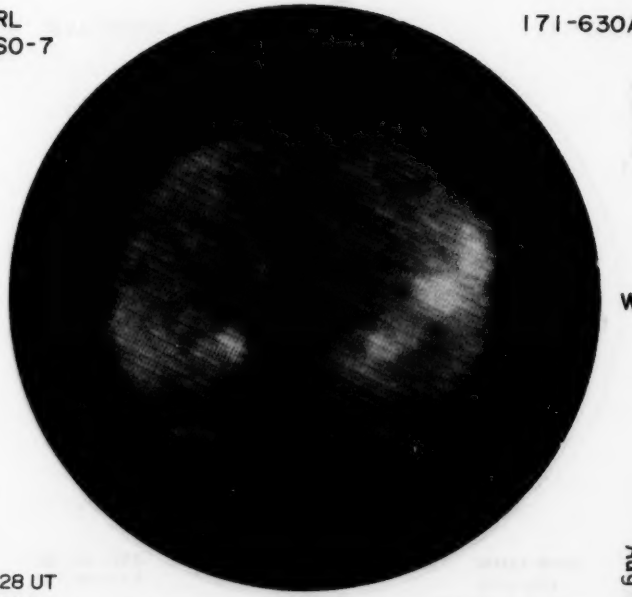
1427 UT

Sp

Np

NRL
OSO-7

171-630A



1428 UT
COUNT= --

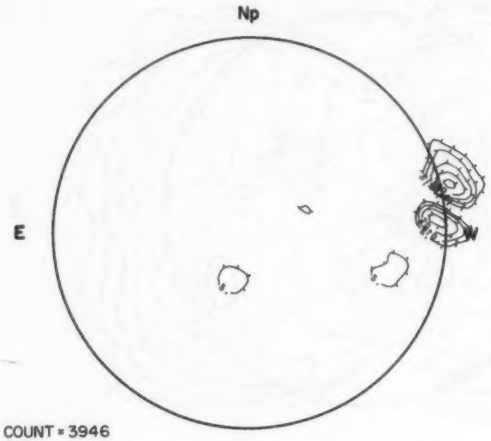
Sp

45
Aug 73

AUGUST 10, 1973 (P = 14.22, B_o = 6.39, L_o = 163.33)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3946
ROLL = 29.4°
P-TH = -3.36

1459 UT

Counts per 0.125 sec.

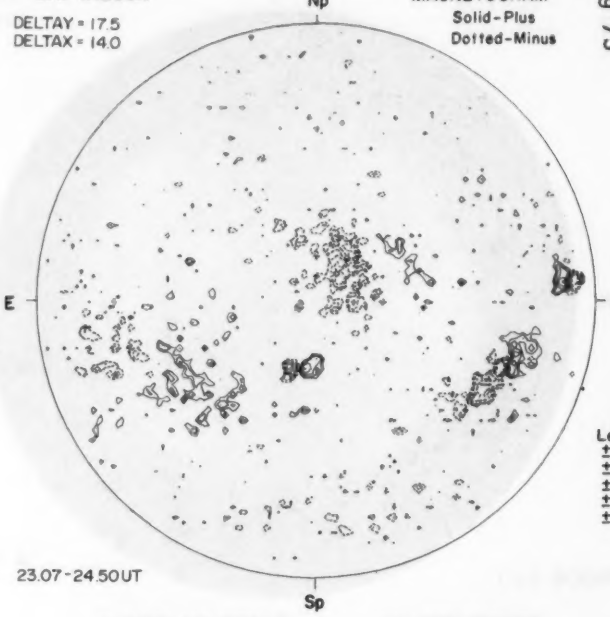
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.5
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

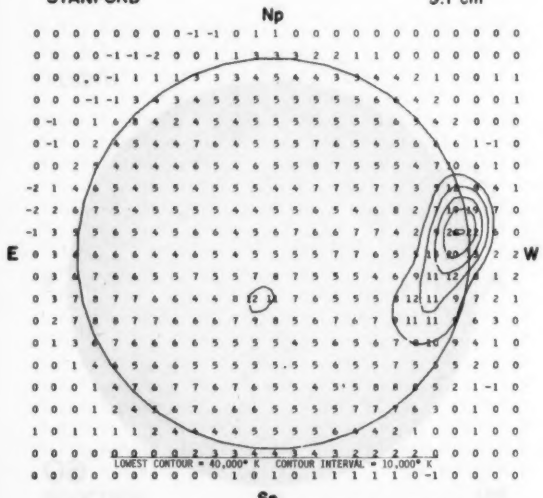


Levels
±5
±10
±20
±40
±80

23.07 - 24.50 UT

STANFORD

9.1 cm

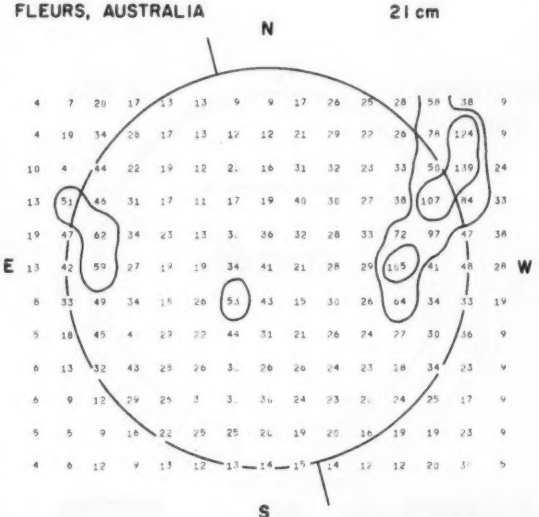


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

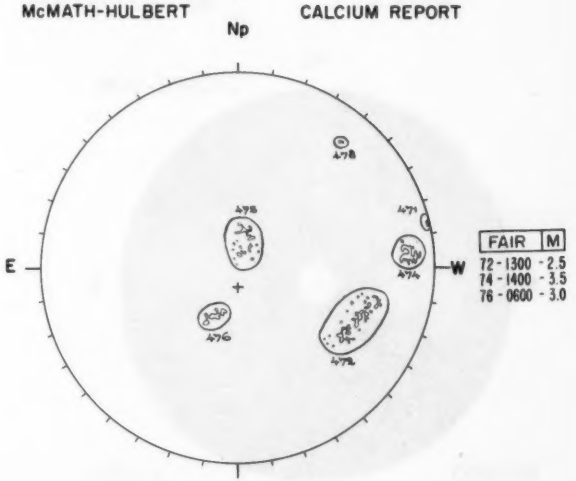


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	M
72 - 1300	- 2.5
74 - 1400	- 3.5
76 - 0600	- 3.0

1550 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

Np

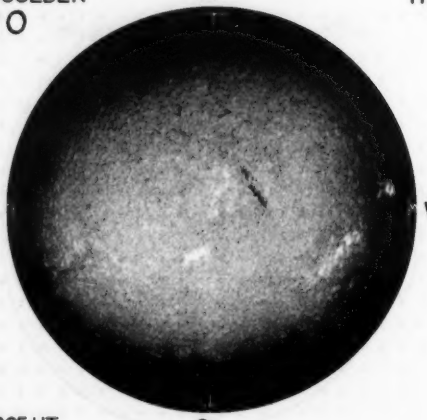
20-21 UT

02-03 UT Brightness Unit 1,700° K

1550 UT

BOULDER Np Hα

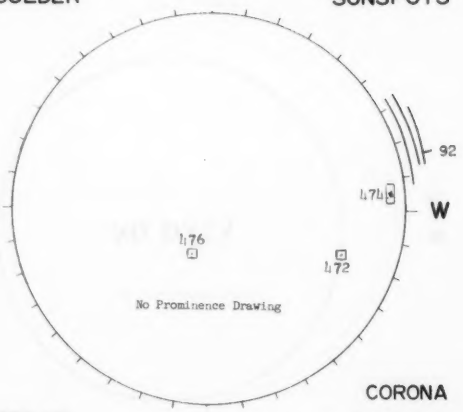
10



E W

1805 UT Sp

BOULDER Np SUNSPOTS



E W

1600 UT Sp

CORONA

WENDELSTEIN

NRL Np WHITE-LIGHT

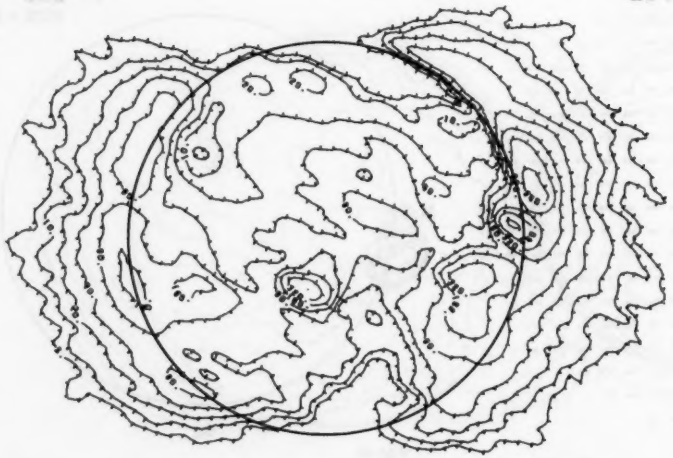
OSO-7 CORONA

E W

1634-2126 UT Sp

NASA GSFC Np FE XV

OSO-7 284 A



E W

COUNT = 62882

ROLL = 29.4°

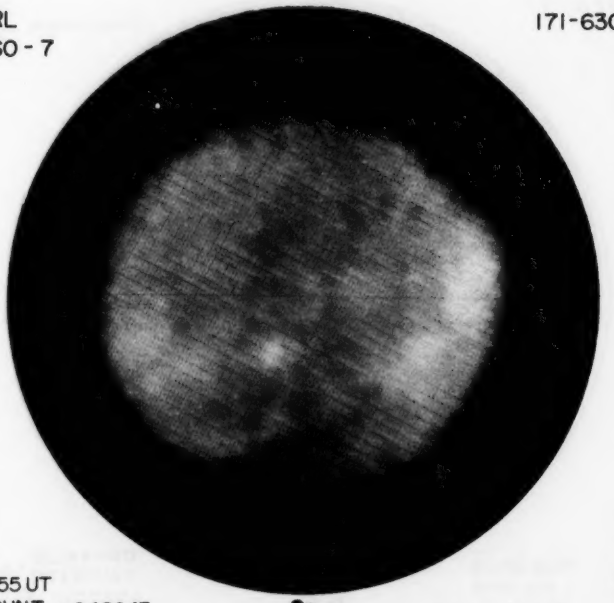
P-TH = -3.36

1459 UT Sp

Np

NRL 171-630A

OSO-7



E W

1455 UT

COUNT = 249243 Sp

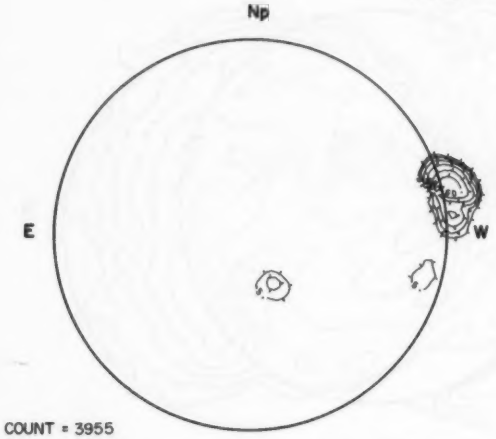
47

Aug 73

AUGUST 11, 1973 (P = 14.58, B_o = 6.44, L_o = 150.11)

NASA GSFC
OSO-7

X-RAY
8-16A



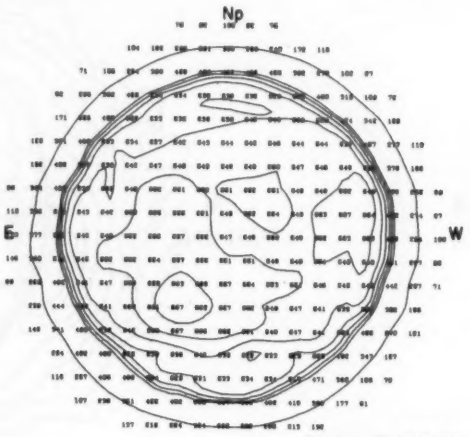
COUNT = 3955
ROLL = 28.7°
P-TH = -3.26

1351 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



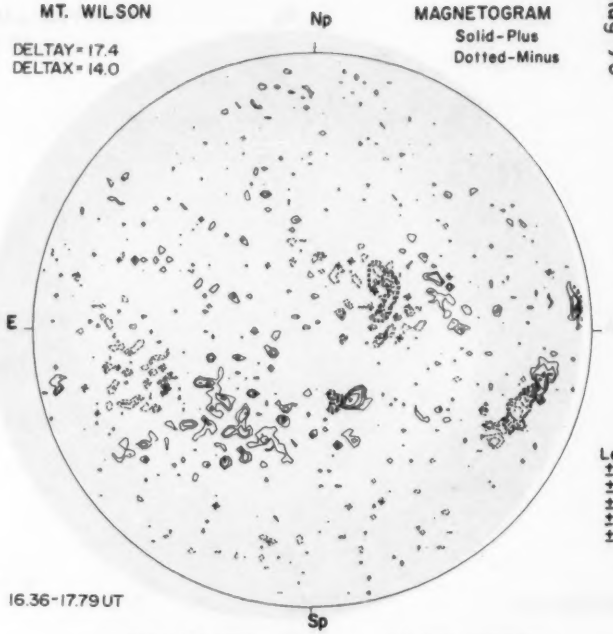
1459 UT

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

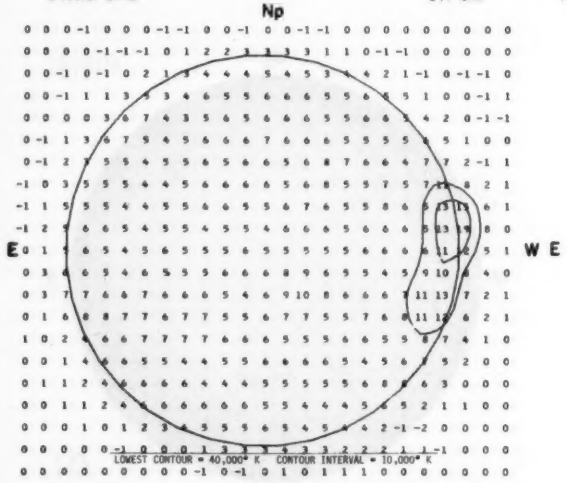


Levels
±5
±10
±20
±40
±80

16.36-17.79 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

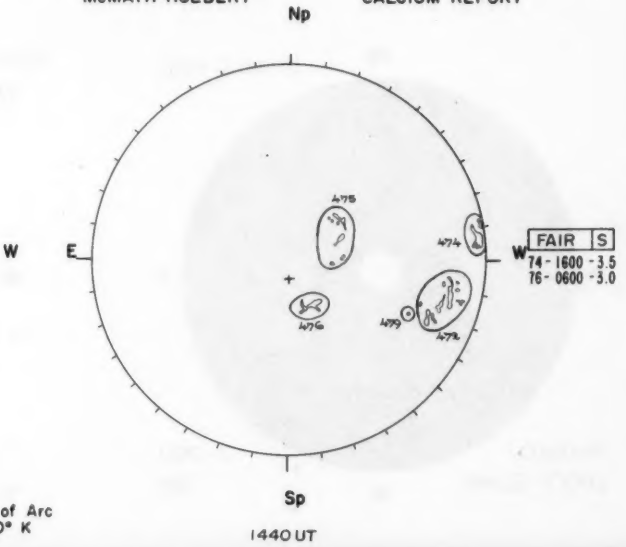
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

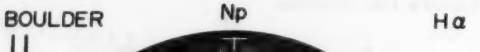
McMATH-HULBERT

CALCIUM REPORT



1440 UT

BOULDER
II



Hα

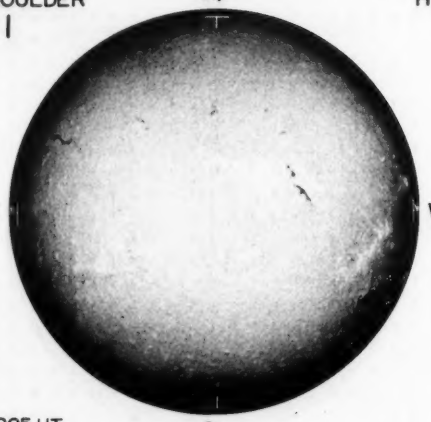
BOULDER

SUNSPOTS

NRL
OSO-7

WHITE-LIGHT
CORONA

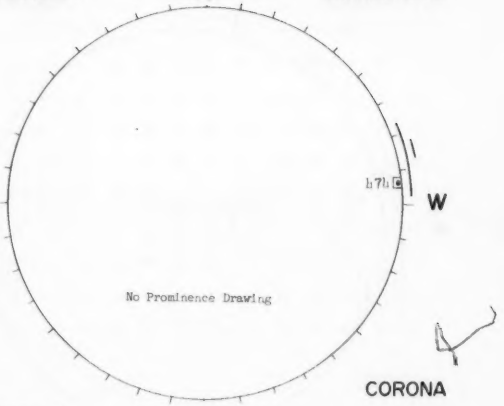
BOULDER
Np
Hα



E
W
Sp

1805 UT

BOULDER
Np
SUNSPOTS

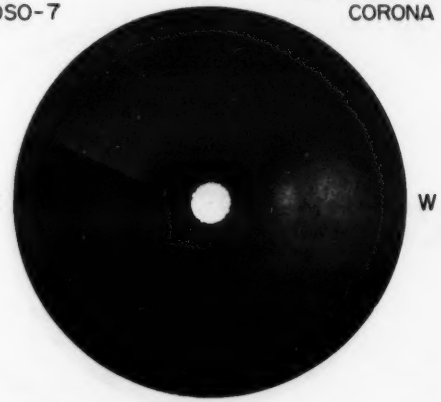


E
W
Sp

1645 UT

CORONA
SAC PEAK

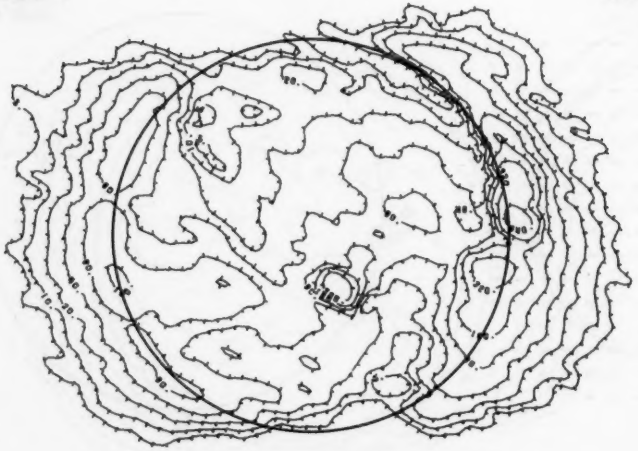
NRL
OSO-7
Np
WHITE-LIGHT
CORONA



E
W
Sp

1526-2017 UT

NASA GSFC
OSO-7
Np
FE XV
284A

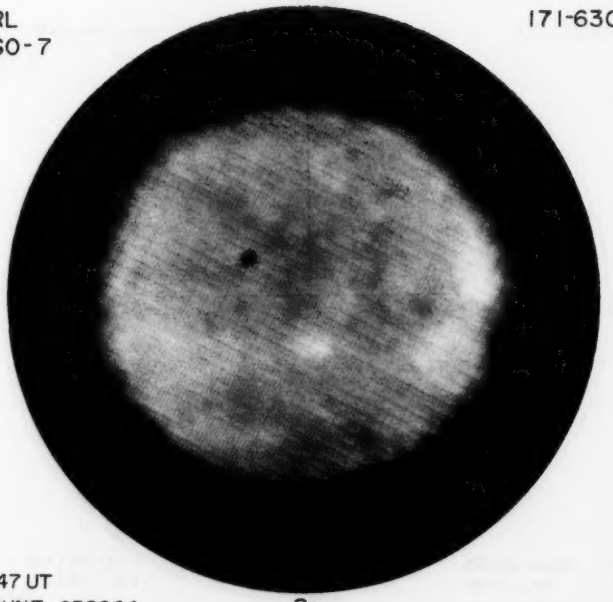


E
W
Sp

1351 UT

COUNT= 55595
ROLL = 28.7°
P-TH = -3.26

NRL
OSO-7
Np
171-630A



E
W
Sp

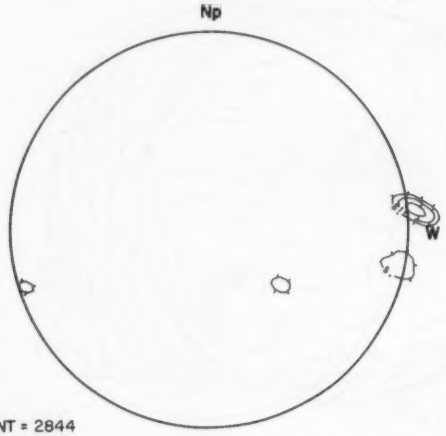
1347 UT
COUNT=258964

AUGUST 12, 1973 (P = 14.94, B_o = 6.50, L_o = 136.89)

50
Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



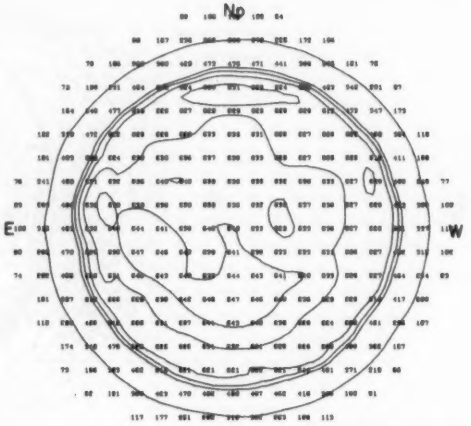
COUNT = 2844
ROLL = 28.1°
P-TH = -3.16

1243 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



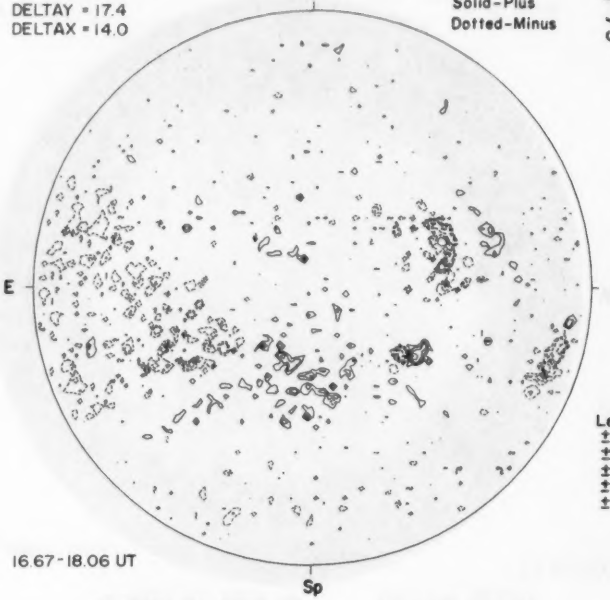
1737 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

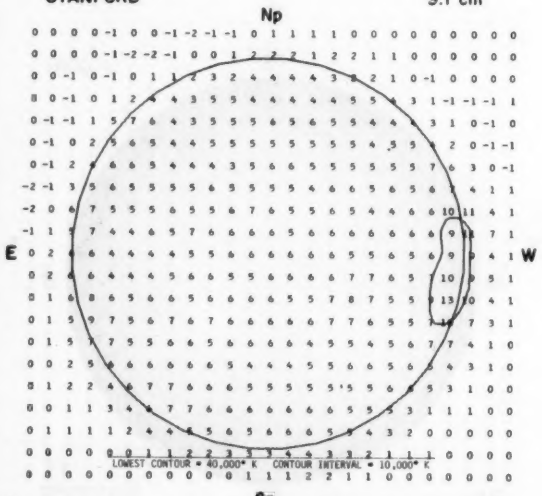


Levels
±5
±10
±20
±40
±80

16.67-18.06 UT

STANFORD

9.1 cm



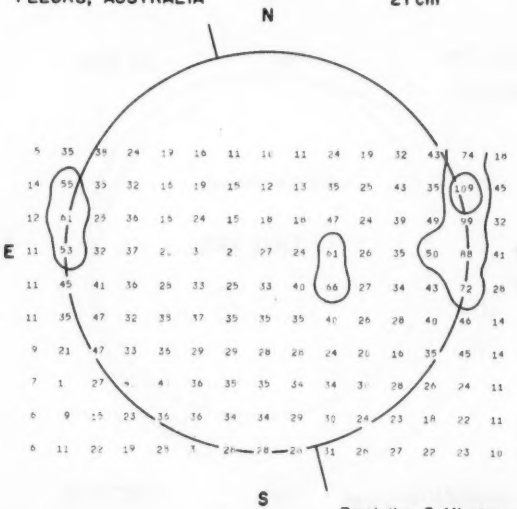
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

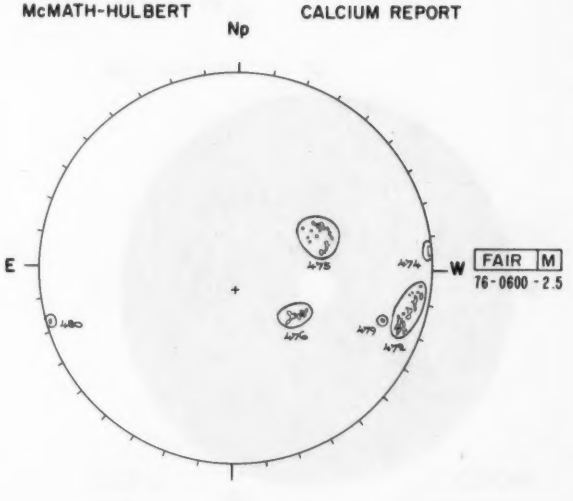


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

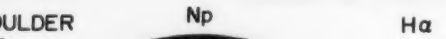
McMATH-HULBERT

CALCIUM REPORT



1405 UT

BOULDER

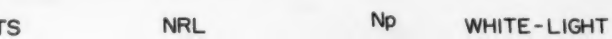


Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1405 UT

BOULDER
12

Np

Hα

E

W

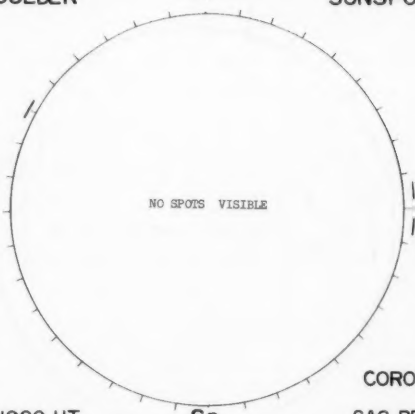
Sp

1407 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1900 UT

CORONA

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

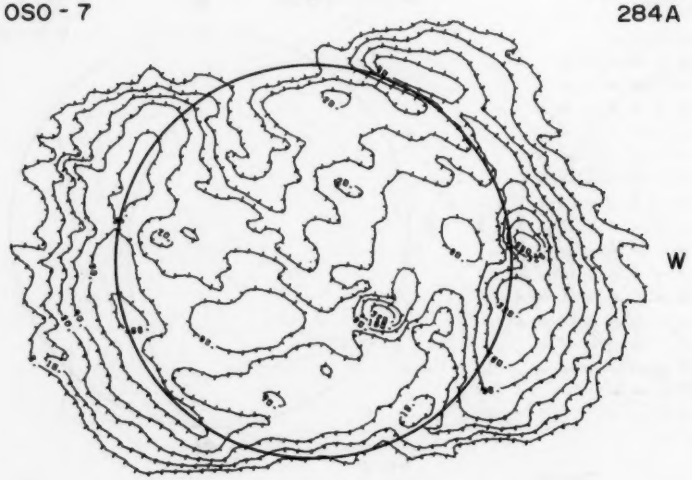
Sp

1418-1731 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT = 51850
ROLL = 28.1°
P-TH = -3.16

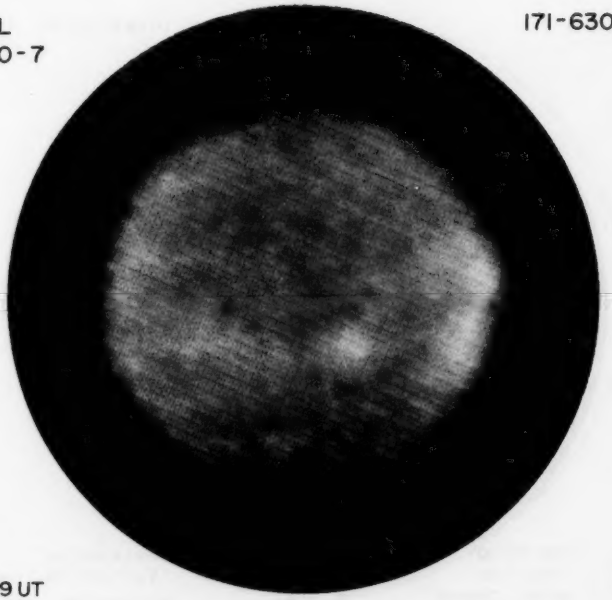
1243 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

1239 UT
COUNT = --

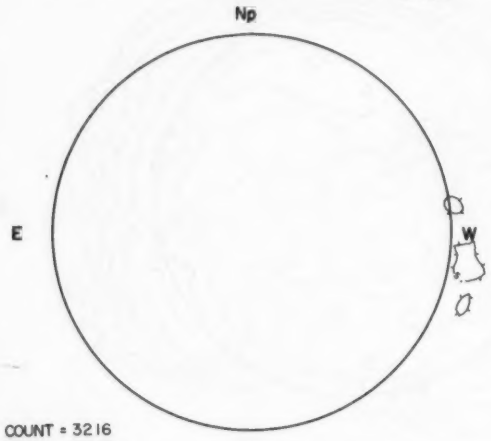
Sp

51
Aug 73

AUGUST 13, 1973 (P = 15.29, B_o = 6.55, L_o = 123.67)

NASA GSFC
OSO-7

X-RAY
8-16A



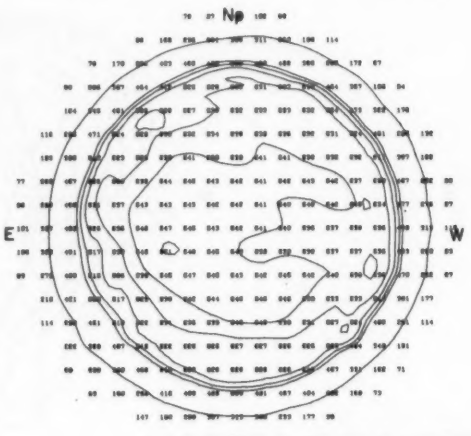
COUNT = 3216
ROLL = 27.2°
P-TH = -3.02

1803 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

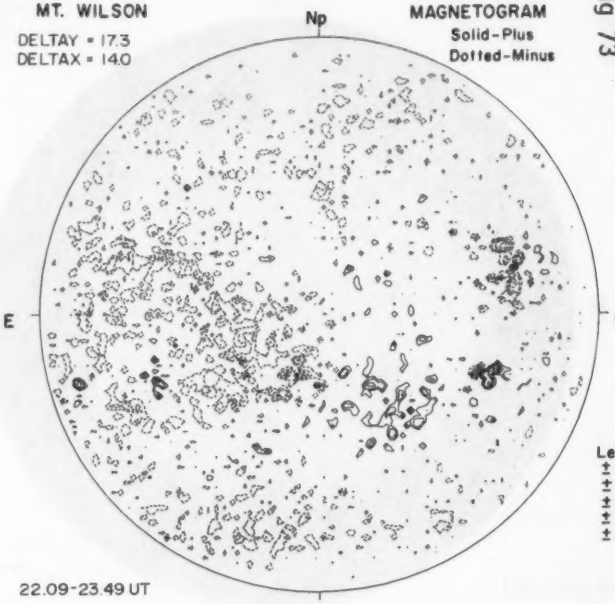


1334 UT

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

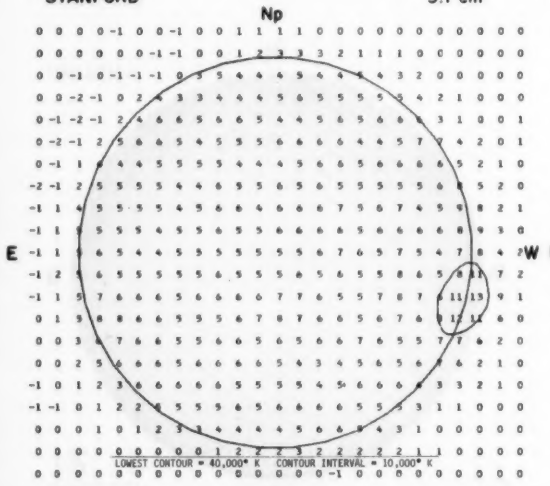


Levels
±5
±10
±20
±40
±80

22.09-23.49 UT

STANFORD

9.1 cm



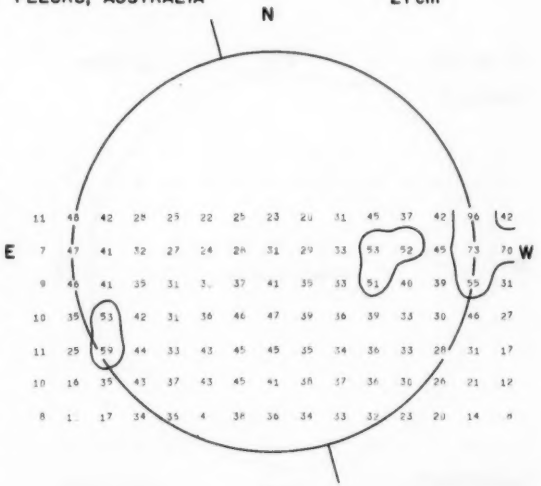
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

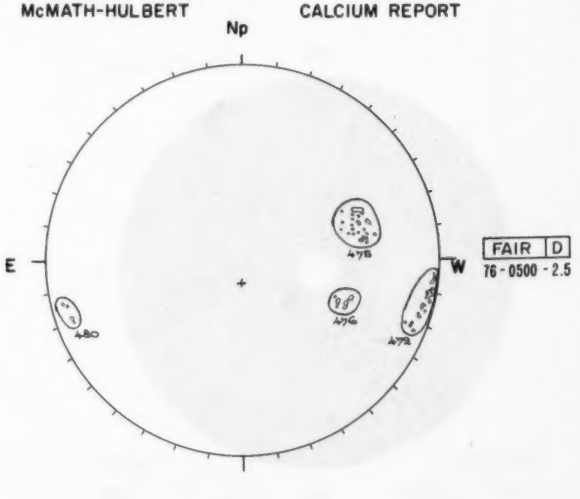


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1210 UT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1210 UT

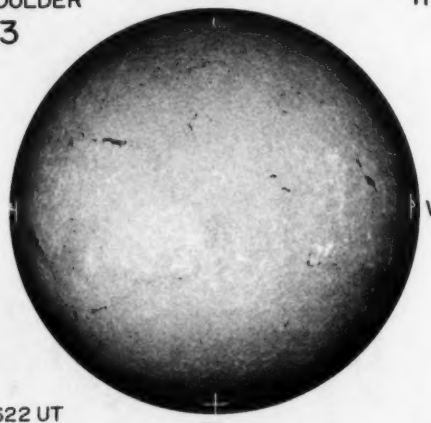
BOULDER
13

Np

Hα

E

W



1622 UT

Sp

BOULDER

Np

SUNSPOTS

E

NO SPOTS VISIBLE

W

Sp

CORONA

SAC PEAK

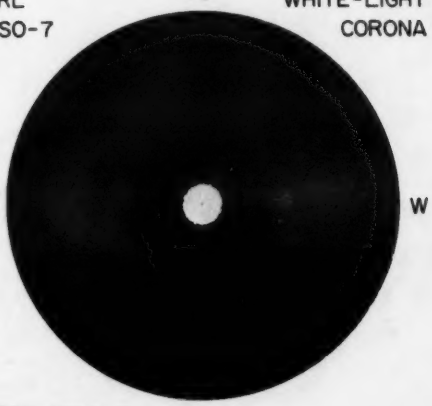
NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W



1309-1624 UT

Sp

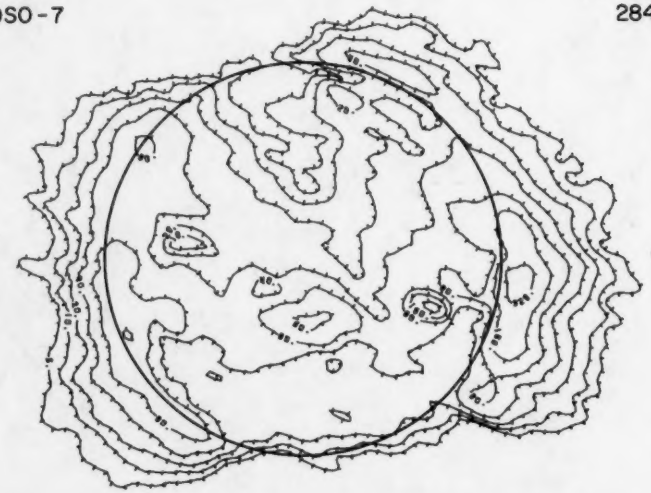
Np

NASA GSFC
OSO-7

FE XV
284A

E

W



COUNT = 46700
ROLL = 27.2°
P-TH = -3.02

1803 UT

Sp

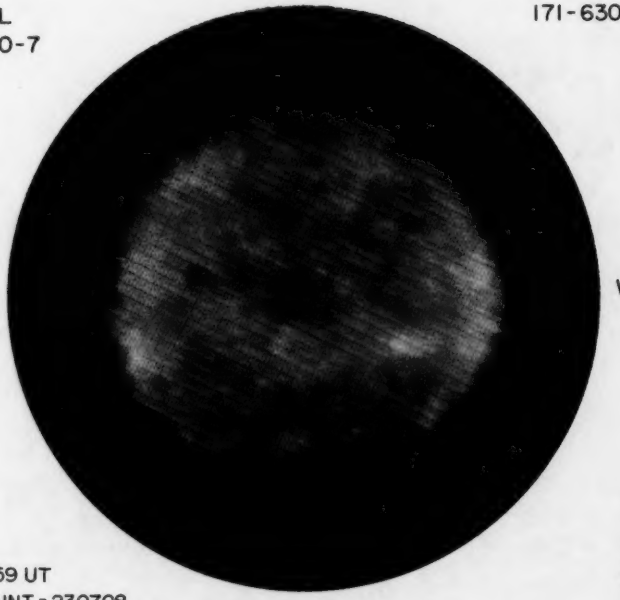
Np

NRL
OSO-7

171-630A

E

W



1759 UT
COUNT = 230708

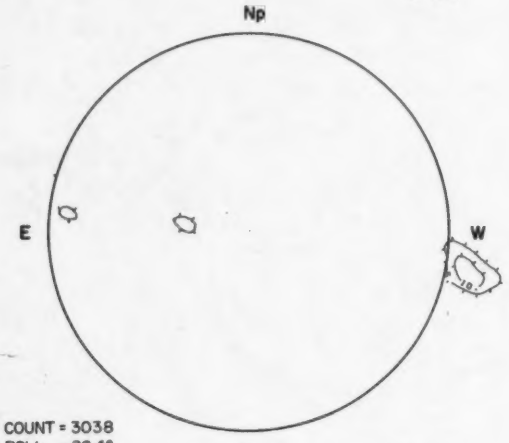
Sp

53
Aug 73

AUGUST 14, 1973 (P = 15.64, B_o = 6.60, L_o = 110.45)

NASA GSFC
OSO-7

X-RAY
8-16A



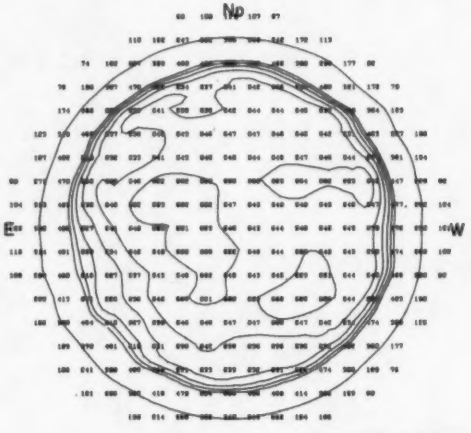
COUNT = 3038
ROLL = 26.4°
P-TH = -2.94

1204 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



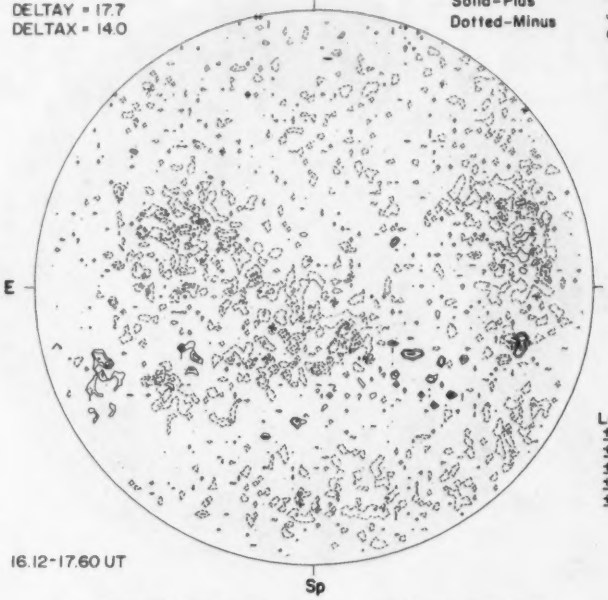
1341 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.7
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

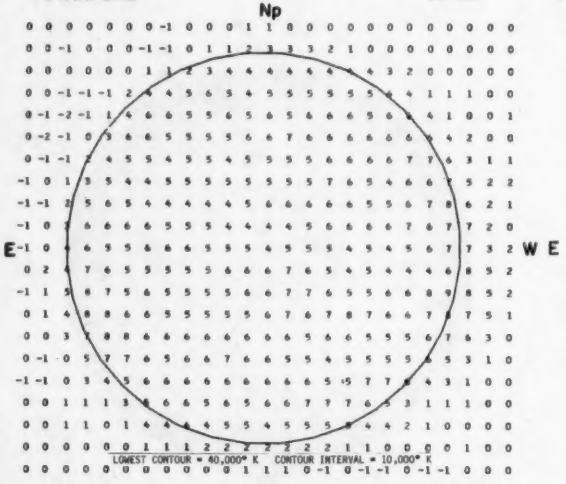


Levels
±5
±10
±20
±40
±80

16.12-17.60 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

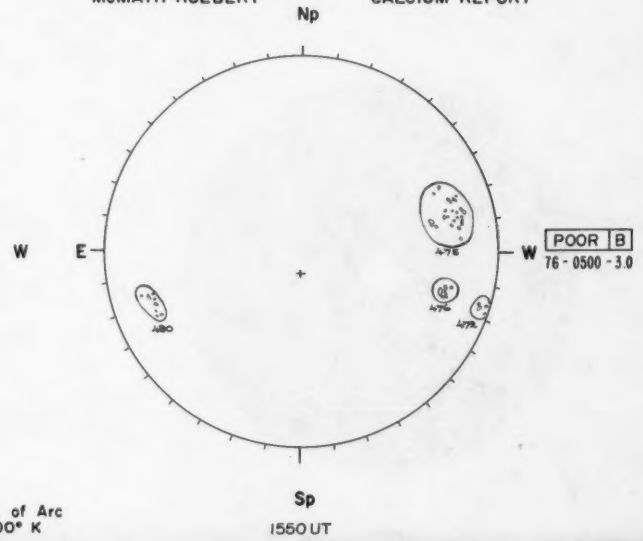
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

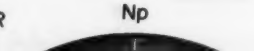
CALCIUM REPORT



POOR B
76 - 0500 - 3.0

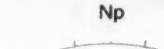
1550 UT

BOULDER
14



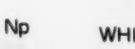
Hα

BOULDER



SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT Brightness Unit 3,000° K

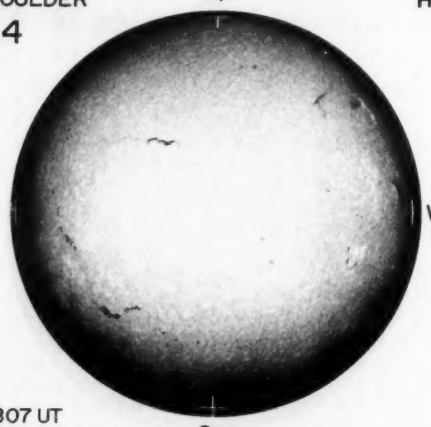
02-03 UT Brightness Unit 1,700° K

1550 UT

BOULDER
14

Np

Hα



E W

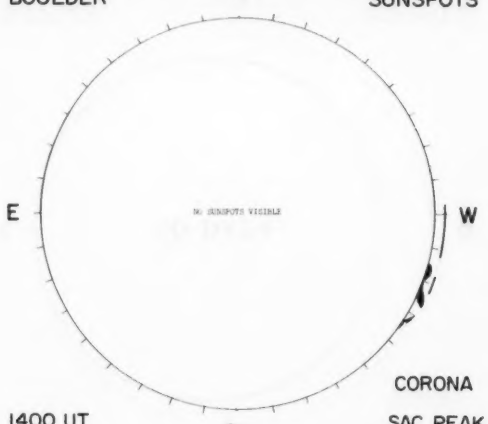
Sp

1807 UT

BOULDER

Np

SUNSPOTS



E W

CORONA

Sp

1400 UT

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

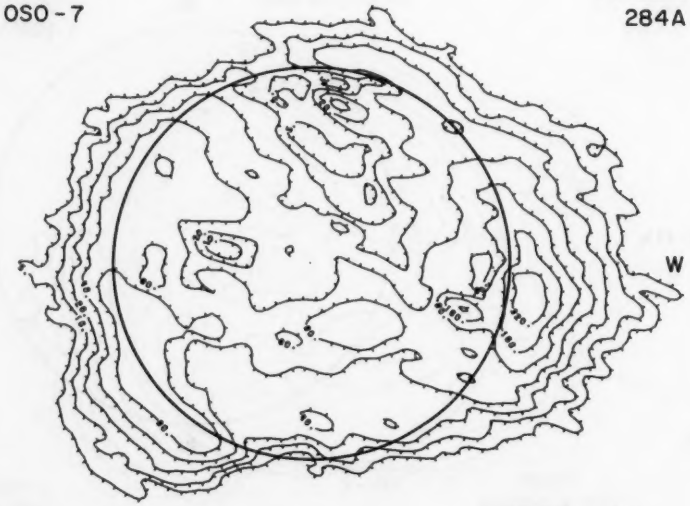
Sp

1338-1652 UT

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 46901
ROLL = 26.4°
P-TH = -2.94

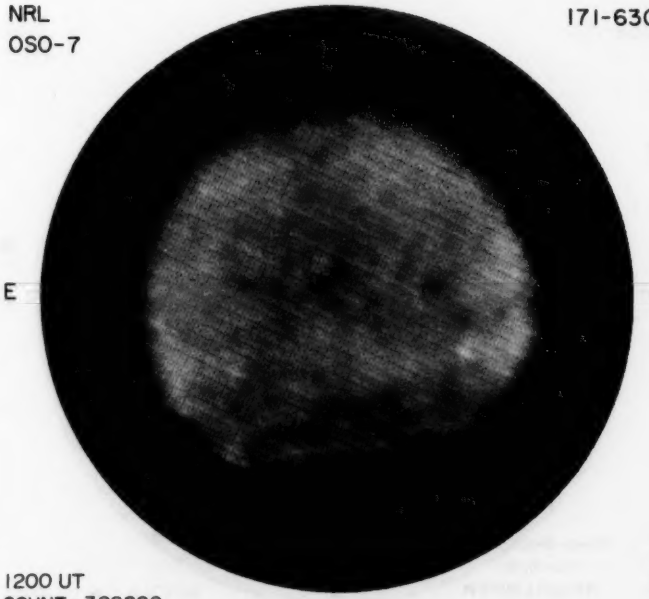
1204 UT

Sp

Np

NRL
OSO-7

171-630A



E W

1200 UT
COUNT = 302200

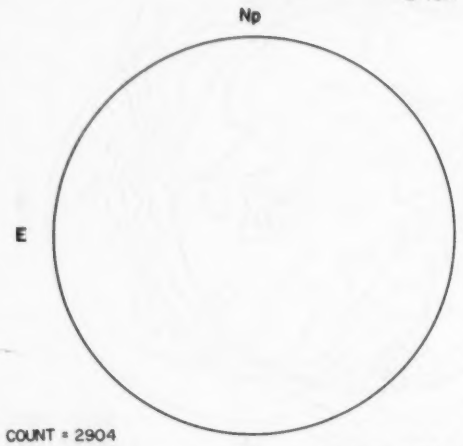
Sp

55
Aug 73

AUGUST 15, 1973 (P = 15.98, B_o = 6.65, L_o = 97.23)

NASA GSFC
OSO-7

X-RAY
8-16A



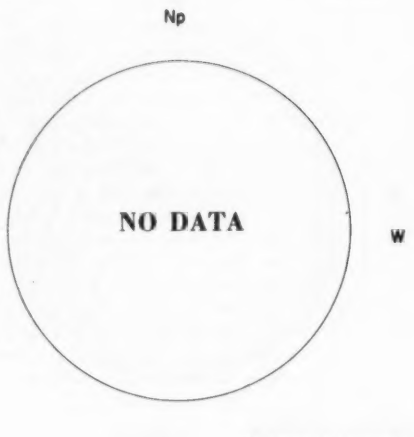
COUNT = 2904
ROLL = 25.6°
P-TH = -2.80

1724 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



Contours in Intervals of 200° K

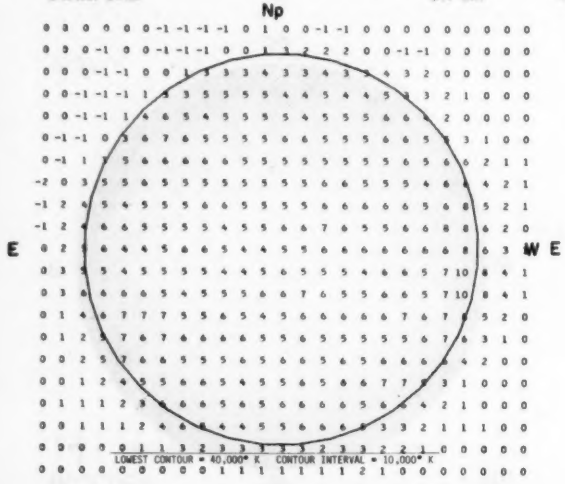
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

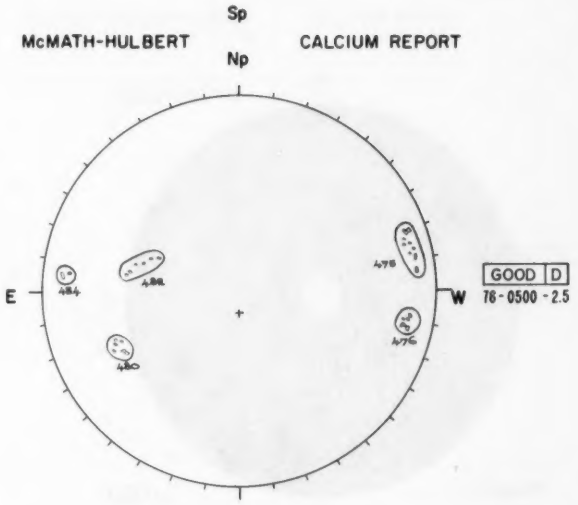
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



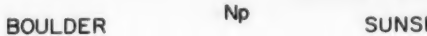
GOOD | D
76-0500-2.5

1330 UT

BOULDER

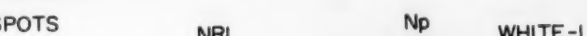
Hα

BOULDER



SUNSPOTS

NRL



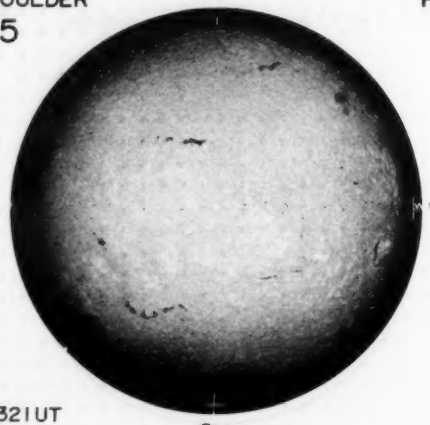
WHITE-LIGHT

20-21 UT Brightness Unit 5,000° K

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

1330 UT

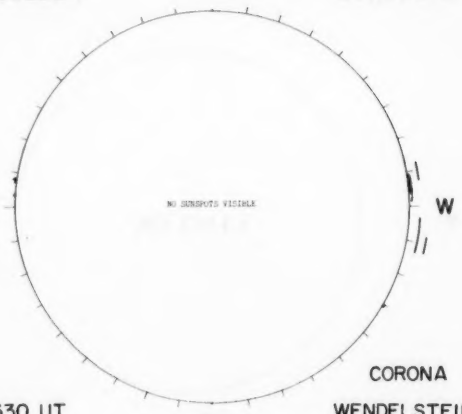
BOULDER 15 Np Hα



E W Sp

1321 UT

BOULDER Np SUNSPOTS



E W

CORONA WENDELSTEIN

1330 UT Sp

NRL OSO-7 Np WHITE-LIGHT CORONA

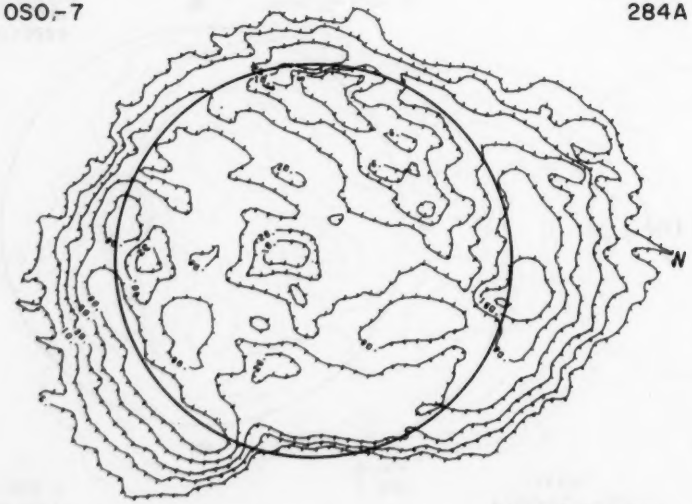
E W

1230-1544 UT Sp

Np

NASA GSFC OSO-7

FE XV 284A



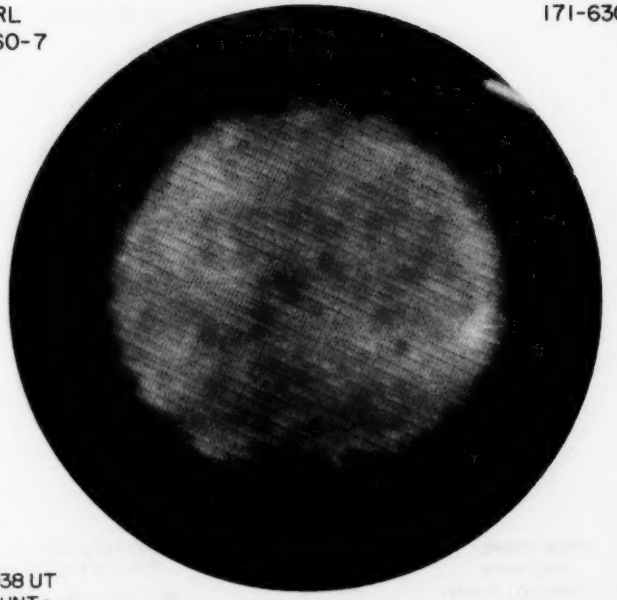
E N

COUNT = 43332
ROLL = 25.6°
P-TH = -2.80

1724 UT Sp

Np

NRL OSO-7 171-630A



E W

2038 UT
COUNT = --

Sp

57
Aug 73

AUGUST 16, 1973 (P = 16.32, B_o = 6.70, L_o = 84.02)

NASA GSFC
OSO-7

X-RAY
8-16A

Np

E W

COUNT = 3228
ROLL = 24.8°
P-TH = -2.72

Sp
1125 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

Np

NO DATA

E W

Sp

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.6
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E W

Sp
15.16-16.59 UT

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Sp
20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

W E

S
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np

W E

484 482 483 478 480 476

FAIR D
83-0300 -2.5

Sp
1215 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

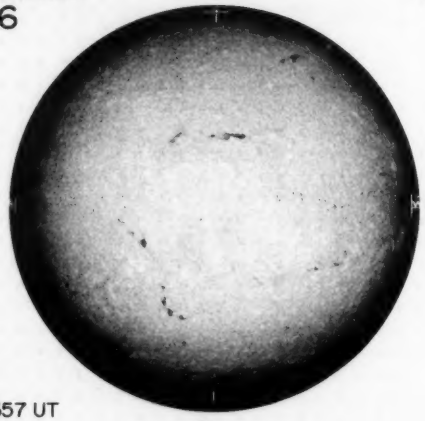
Np

WHITE-LIGHT

BOULDER
16

Np

Hα



E

W

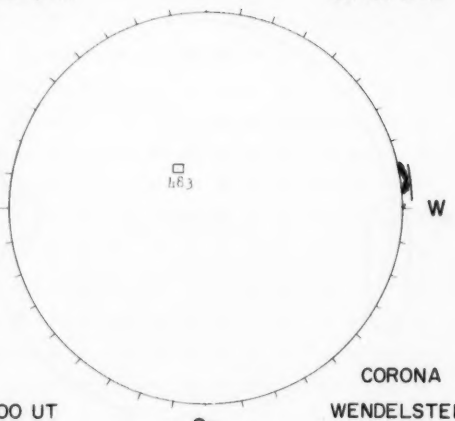
1357 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1800 UT

Sp

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

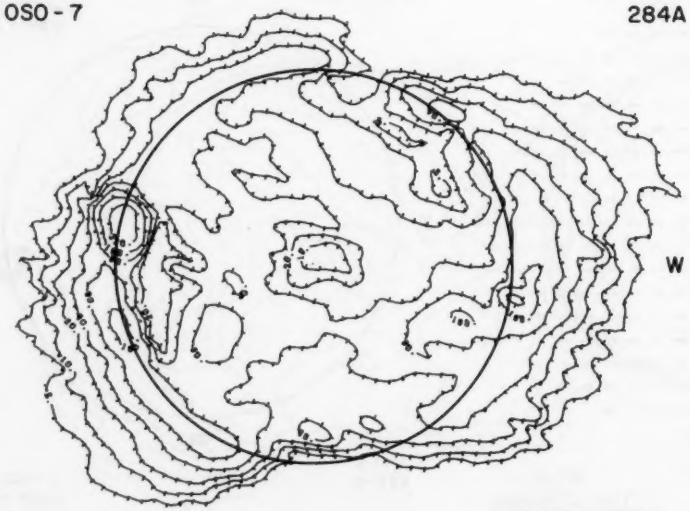
1259-1613 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 45546
ROLL = 24.8°
P-TH = -2.72

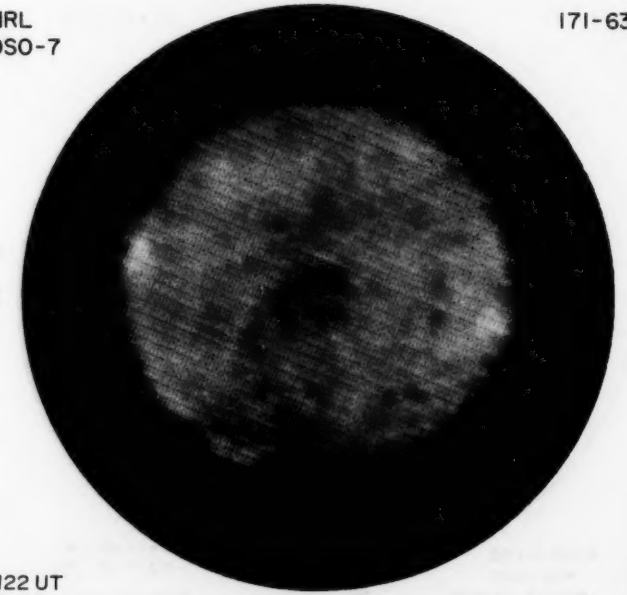
1125 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

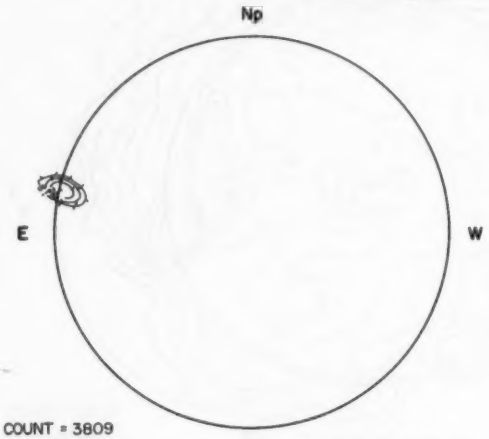
1122 UT
COUNT= --

Sp

AUGUST 17, 1973 (P = 16.66, B_o = 6.75, L_o = 70.80)

NASA GSFC
OSO-7

X-RAY
8-16A



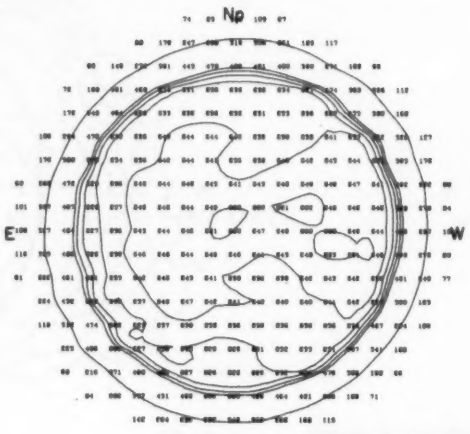
COUNT = 3809
ROLL = 24.1°
P-TH = -2.60

1153 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



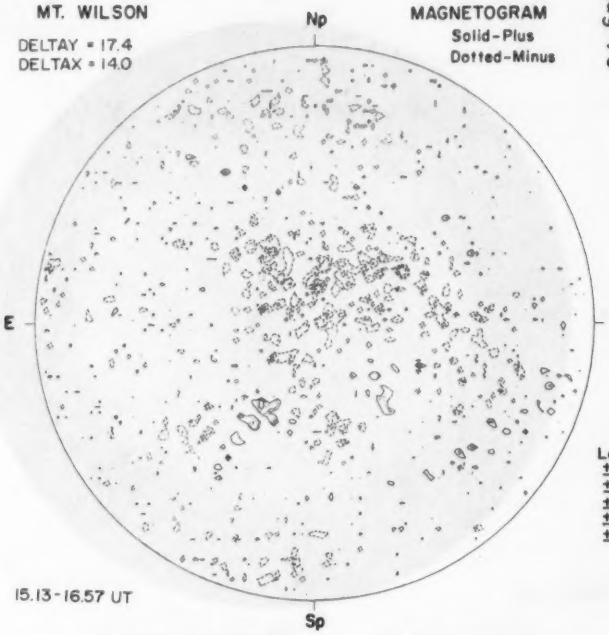
1340 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

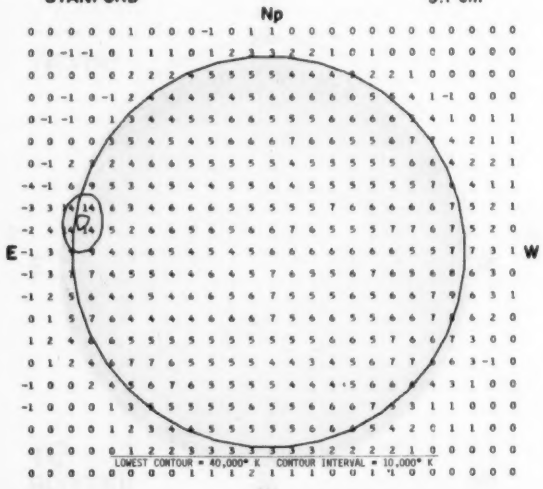


Levels
±5
±10
±20
±40
±80

15.13-16.57 UT

STANFORD

9.1 cm

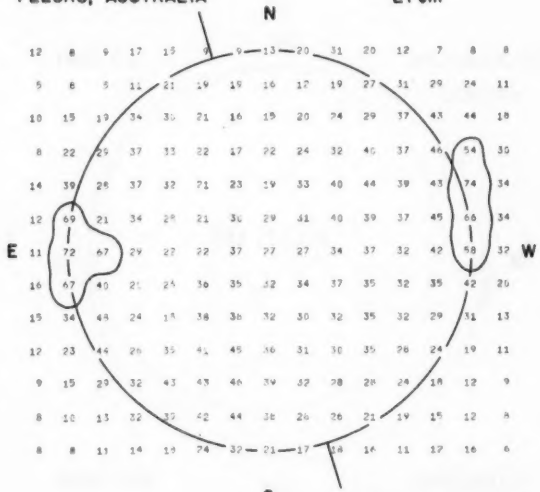


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

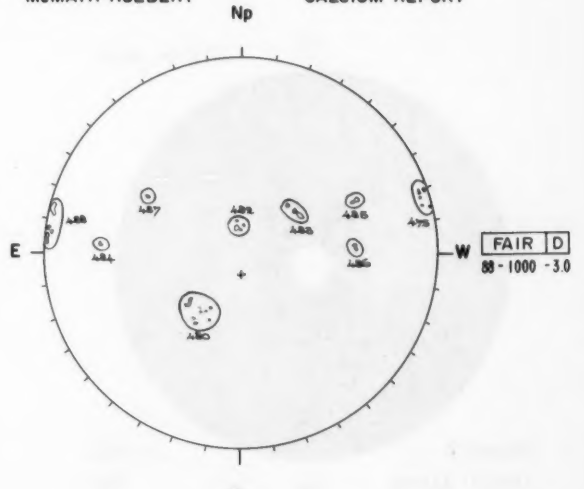


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

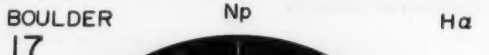
McMATH-HULBERT

CALCIUM REPORT



1400 UT

BOULDER
17



Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

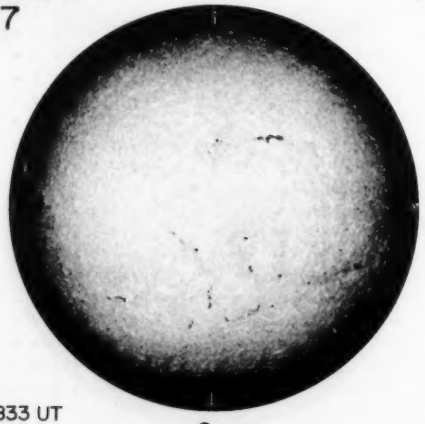
BOULDER
17

Np

Hα

E

W



1833 UT

Sp

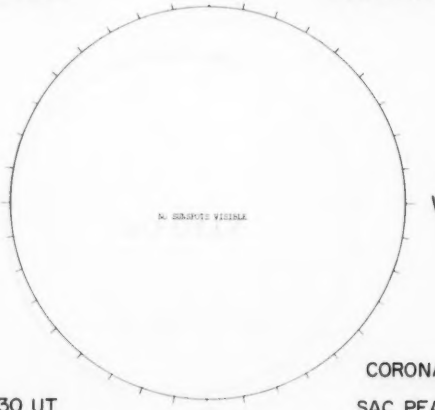
BOULDER

Np

SUNSPOTS

E

W



CORONA

1530 UT

SAC PEAK

Sp

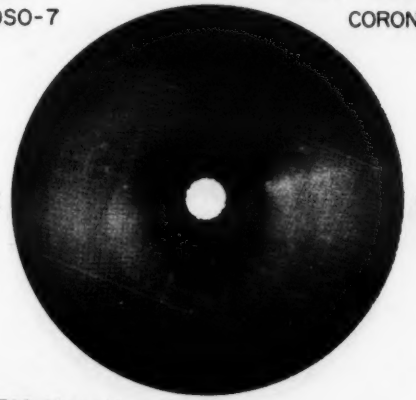
NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W



1328-1641 UT

Sp

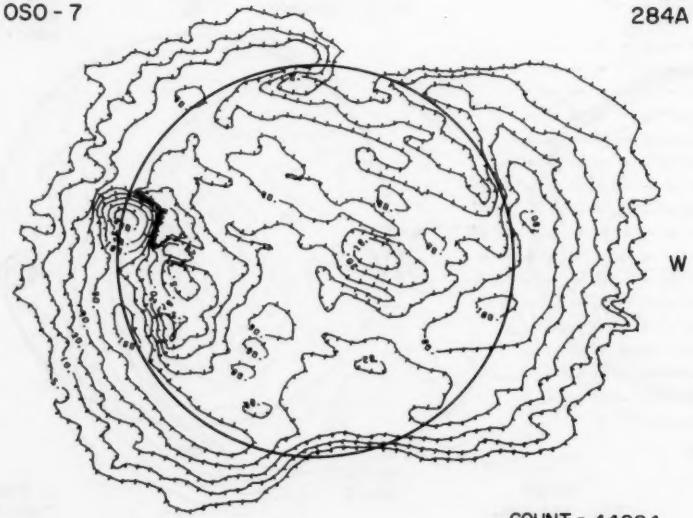
Np

NASA GSFC
OSO-7

FE XV
284A

E

W



COUNT = 44884
ROLL = 24.1°
P-TH = -2.60

1153 UT

Sp

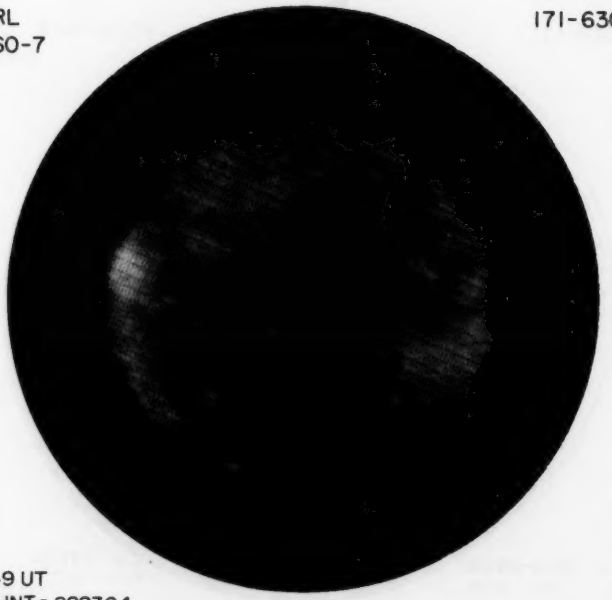
Np

NRL
OSO-7

171-630A

E

W



1149 UT
COUNT = 288304

Sp

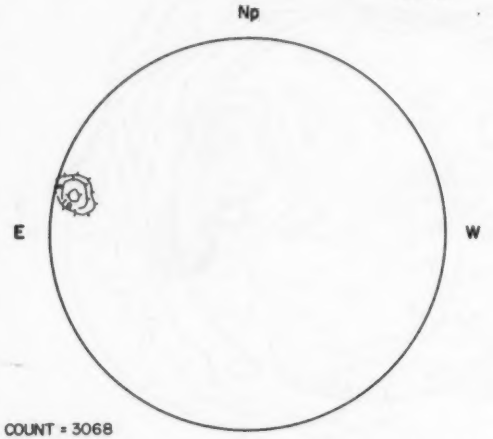
61
Aug 73

AUGUST 18, 1973 (P=16.99, B_o=6.79, L_o=57.58)

62 Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



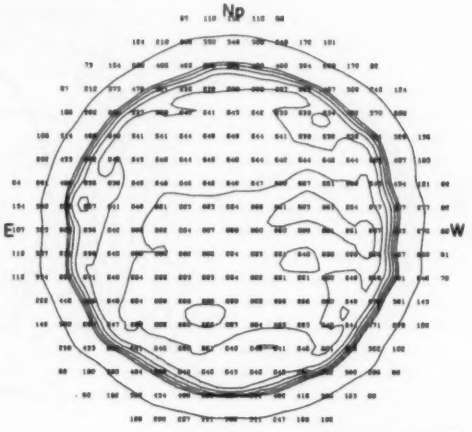
COUNT = 3068
ROLL = 24.0°
P-TH = -2.47

1536 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



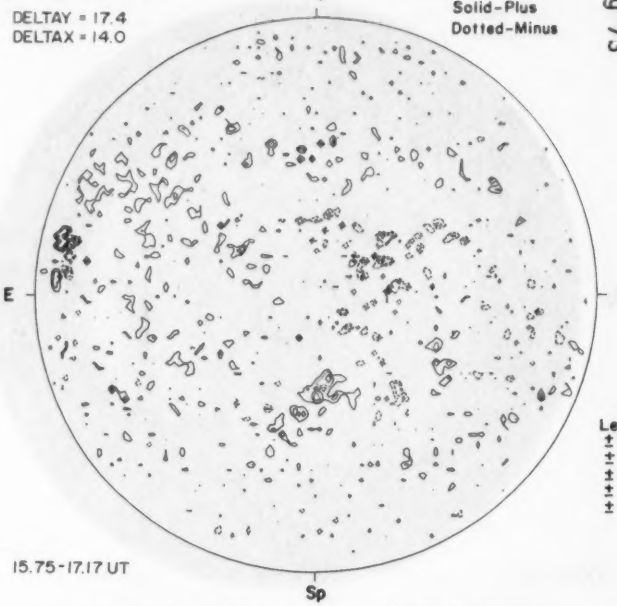
1455 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

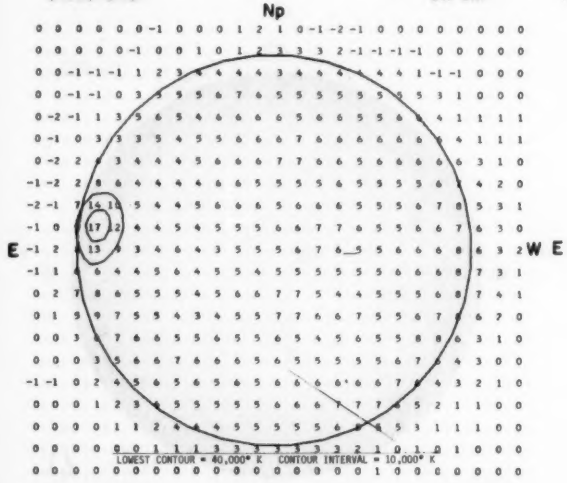


Levels
±5
±10
±20
±40
±80

15.75-17.17 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

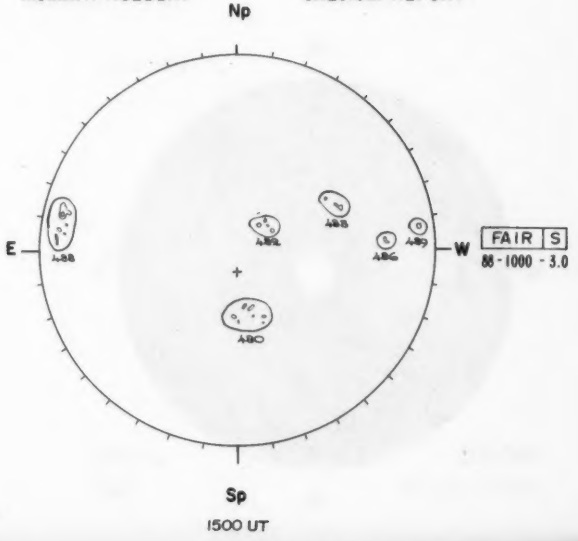
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1500 UT

BOULDER
18

Hα

BOULDER

SUNSPOTS

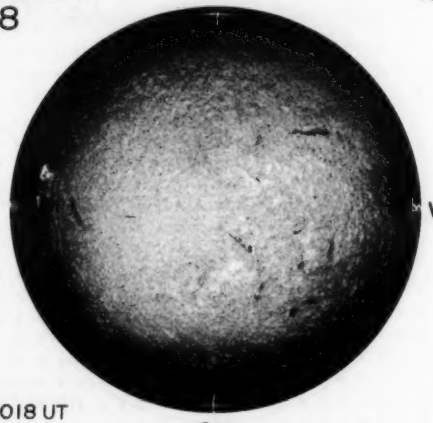
NRL

WHITE-LIGHT

BOULDER
18

Np

Hα



E W

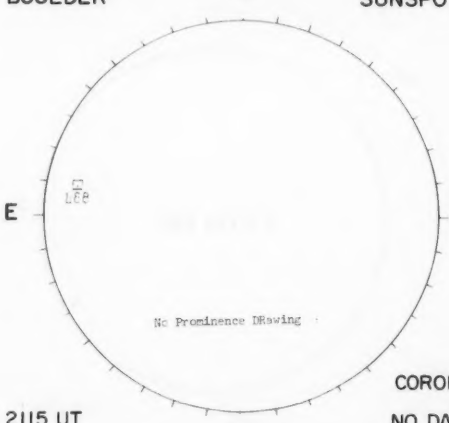
Sp

2018 UT

BOULDER

Np

SUNSPOTS



E W

Sp

CORONA

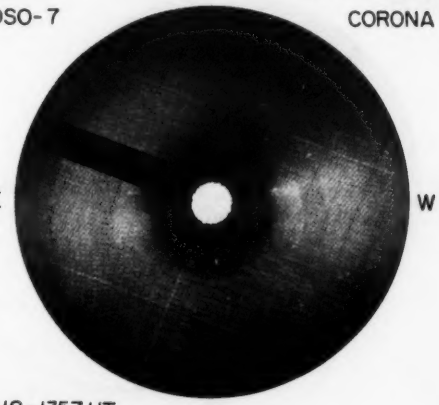
NO DATA

2115 UT

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E W

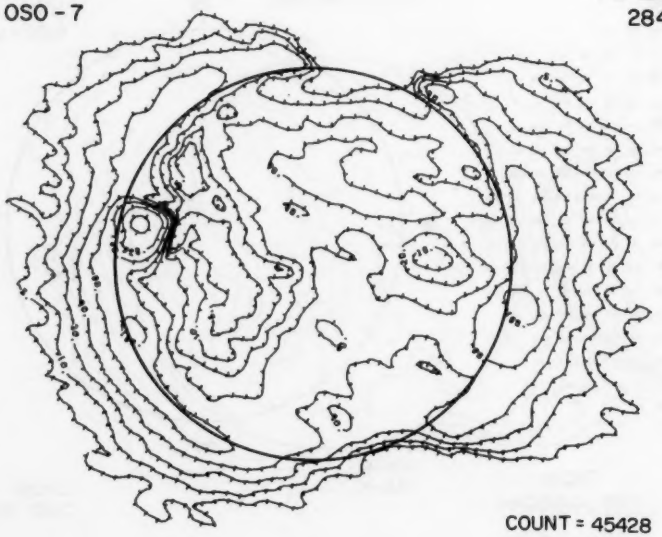
Sp

1118-1357 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E W

Sp

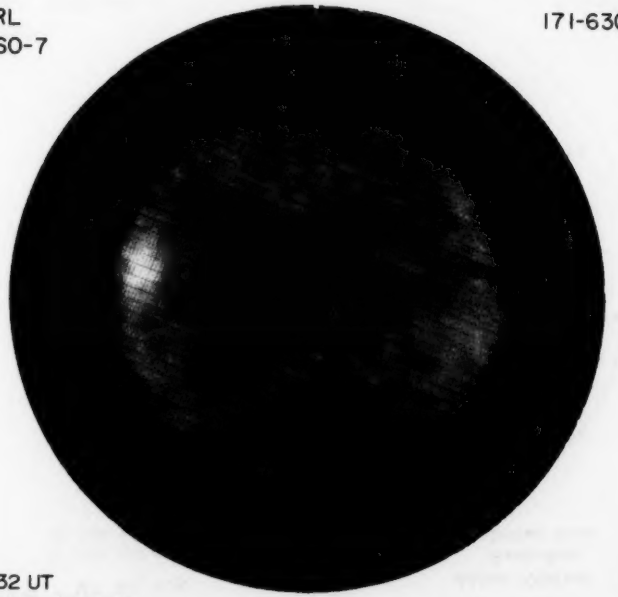
COUNT = 45428
ROLL = 24.0°
P-TH = -2.47

1536 UT

NRL
OSO-7

Np

171-630A



E W

Sp

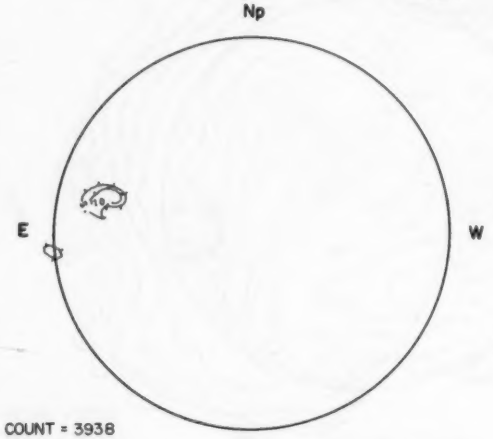
1532 UT
COUNT = 226099

63
Aug 73

AUGUST 19, 1973 (P=17.31, B_o=6.83, L_o=44.36)

NASA GSFC
OSO-7

X-RAY
8-16A



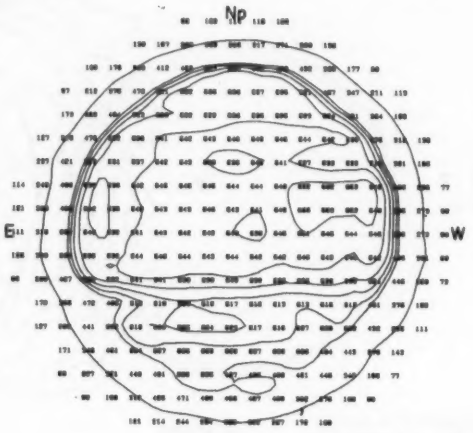
COUNT = 3938
ROLL = 24.3°
P-TH = -2.37

1113 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



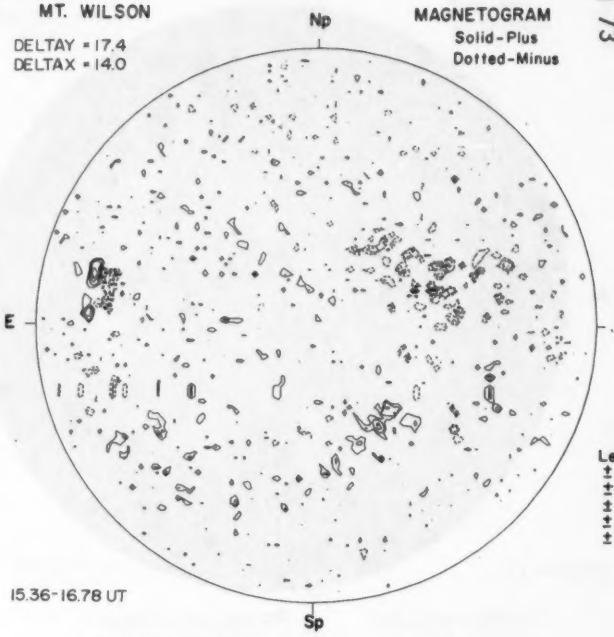
1433 UT

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

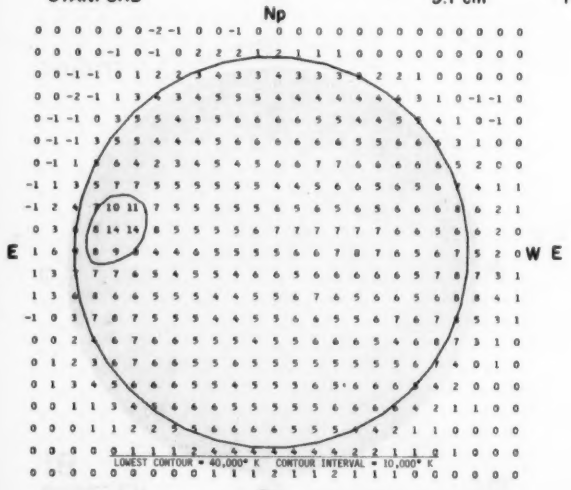


Levels
±5
±10
±20
±40
±80

15.36-16.78 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

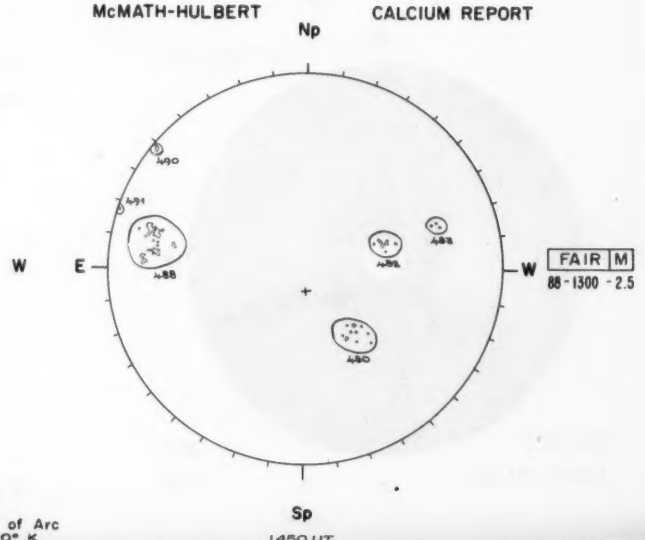
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR M
88-1300 -2.5

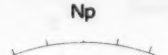
1450 UT

BOULDER
19

Hα

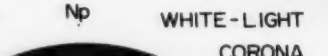
BOULDER

SUNSPOTS



NRL
OSO-7

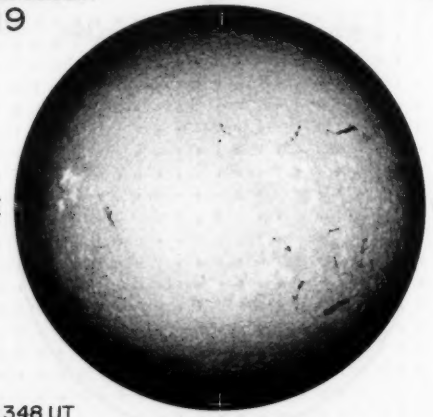
WHITE-LIGHT
CORONA



BOULDER
19

Np

Hα



E W

1348 UT

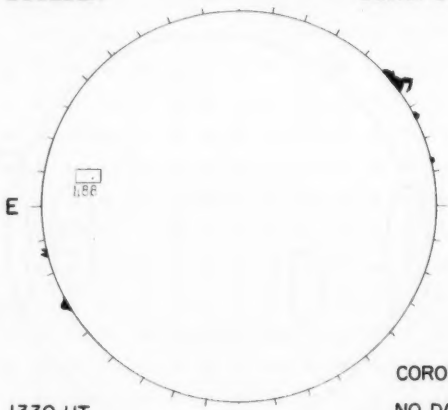
Sp

Np

BOULDER

Np

SUNSPOTS



E W

CORONA

1330 UT

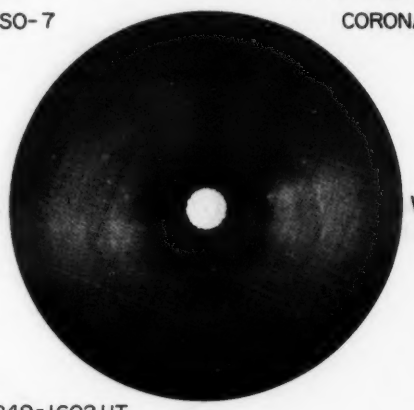
Sp

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E W

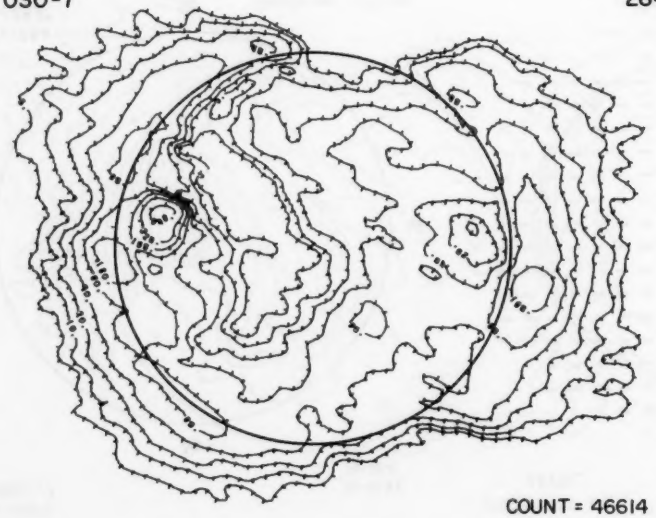
1249-1602 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 46614
ROLL = 24.3°
P-TH = -2.37

1113 UT

Sp

NRL
OSO-7

171-630A

E

NO DATA

W

During the early part of June the NRL instrument began to suffer a gradual disintegration of the XUV filter which previously limited the wavelength to the band 170 - 630 Å. The band extends now to nearly 1600 Å, and the XUV image is diluted mainly with chromospheric Lyman-α radiation. The contrast is therefore lower and the intensity counts higher. No count is given when a maximum has been reached resulting in computer overflow.

COUNT =

Sp

AUGUST 20, 1973 (P=17.63, B_o = 6.87, L_o = 31.15)

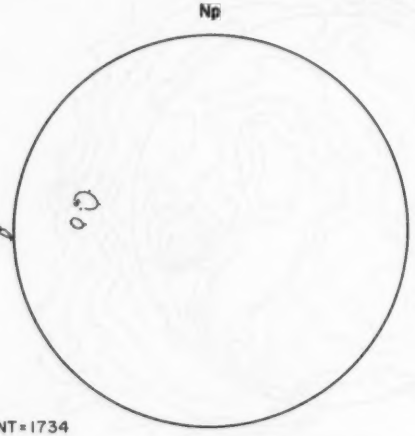
MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

NASA GSFC
OSO-7

X-RAY
8-16A



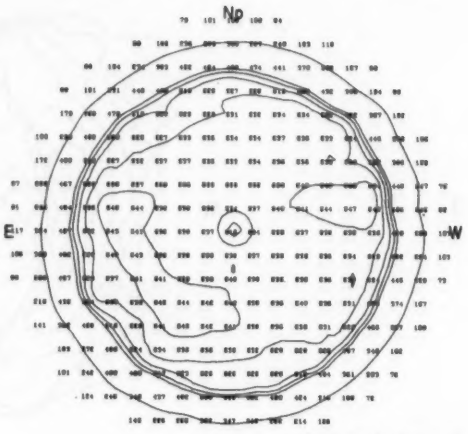
COUNT = 1734
ROLL = 24.2°
P-TH = -2.26

1039 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



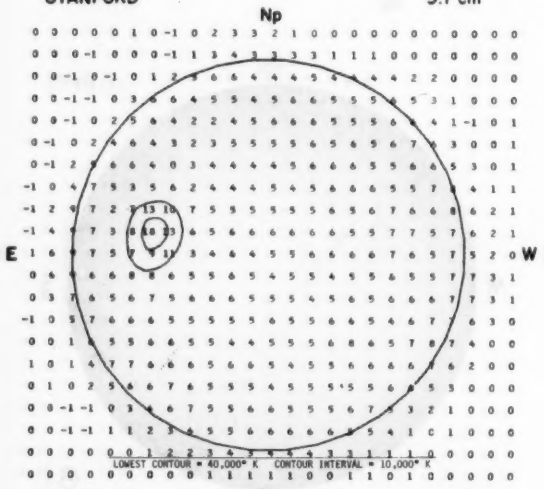
1456 UT

Contours in Intervals of 200° K

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

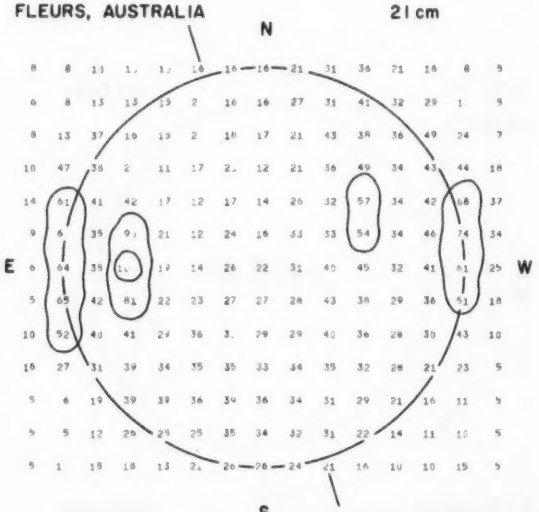


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

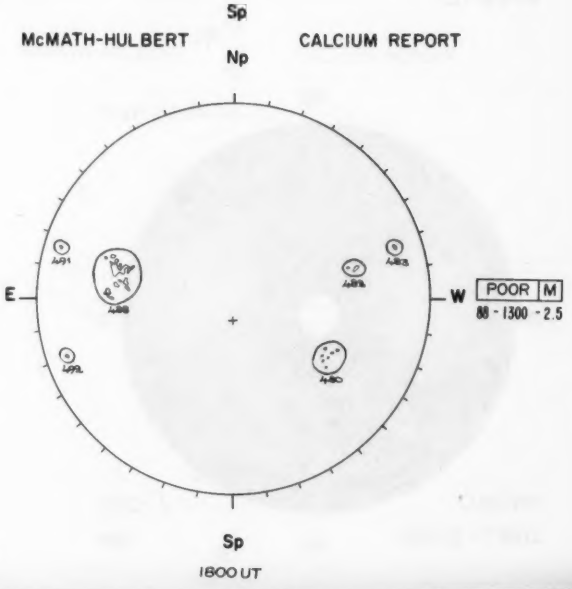


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1800 UT

BOULDER
20

Hα

BOULDER

SUNSPOTS

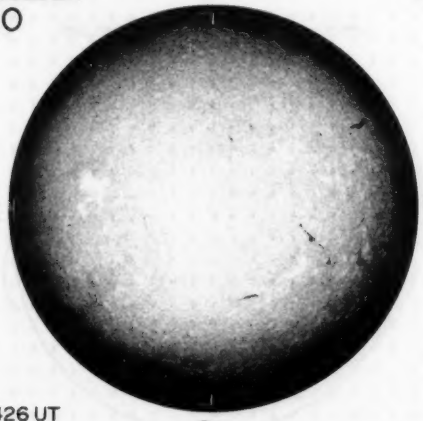
NRL
OSO-7

WHITE-LIGHT
CORONA

BOULDER
20

Np

Hα



E W

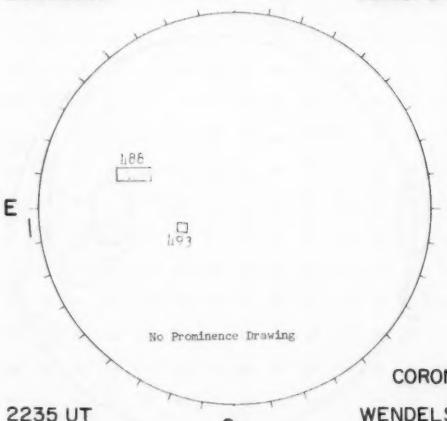
1426 UT

Sp

BOULDER

Np

SUNSPOTS



E W

2235 UT

Sp

CORONA

WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

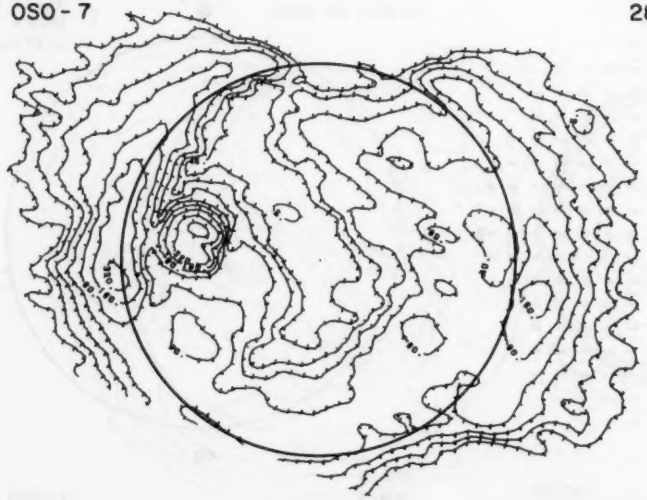
1213-1453 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 47775
ROLL = 24.2°
P-TH = -2.26

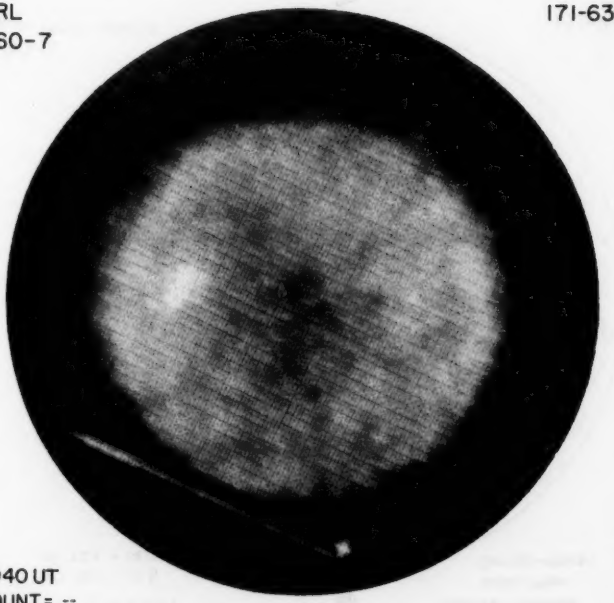
1039 UT

Sp

Np

NRL
OSO-7

171-630A



E W

1040 UT
COUNT = --

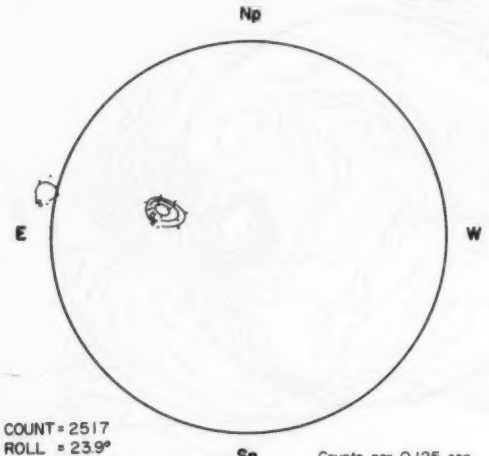
Sp

67
Aug 73

AUGUST 21, 1973 (P=17.95, B_o=6.91, L_o=17.93)

NASA GSFC
OSO-7

X-RAY
8-16A



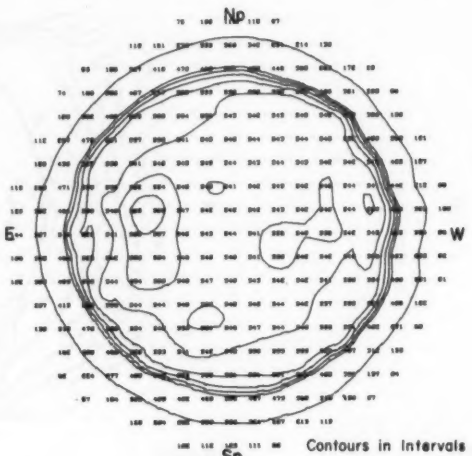
COUNT=2517
ROLL = 23.9°
P-TH = -2.14

1110 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



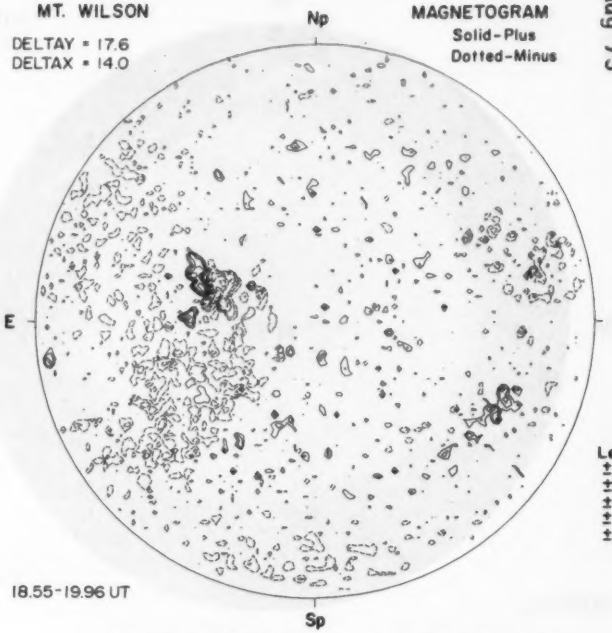
1452 UT

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.6
DELTAX = 14.0

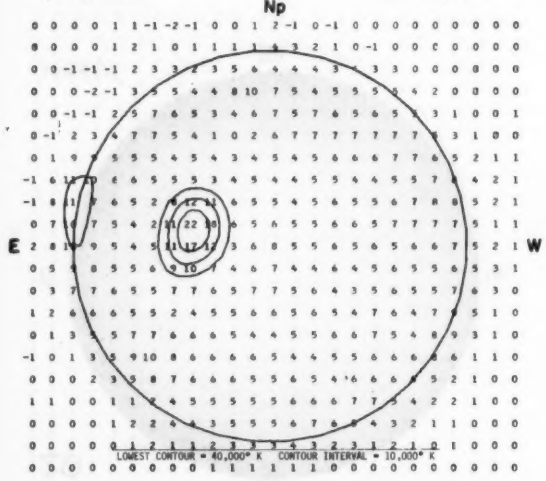


Levels
±5
±10
±20
±40
±80

18.55-19.96 UT

STANFORD

9.1 cm

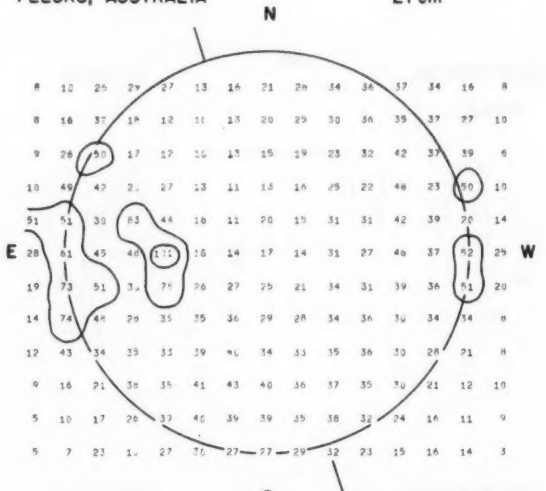


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

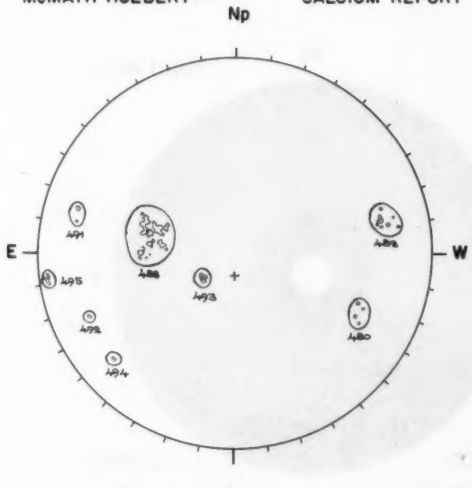


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

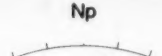


1430 UT

BOULDER
21

Hα

BOULDER



SUNSPOTS

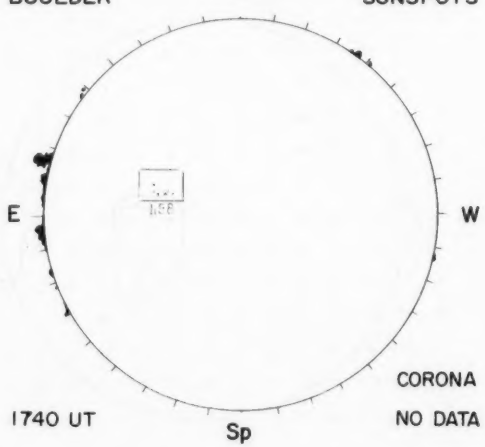
NRL

WHITE-LIGHT

BOULDER Np Hα
21

1345 UT

BOULDER Np SUNSPOTS



CORONA
NO DATA
1740 UT

NRL Np WHITE-LIGHT
OSO-7 CORONA

1209-1704 UT

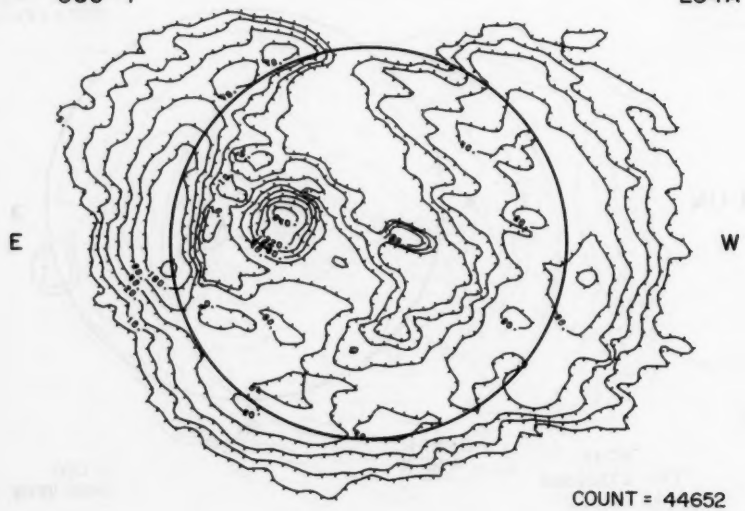
Np

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

171-630A



COUNT = 44652
ROLL = 23.9°
P-TH = -2.14

1110 UT

NO DATA

COUNT =

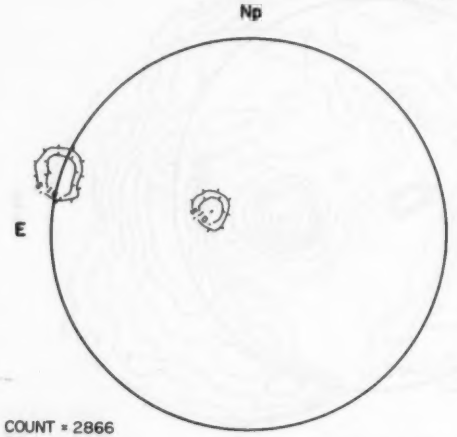
69
Aug 73

AUGUST 22, 1973 (P=18.26, B_o=6.94, L_o=4.72)

70 Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2866
ROLL = 24.3°
P-TH = -2.01

1416 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

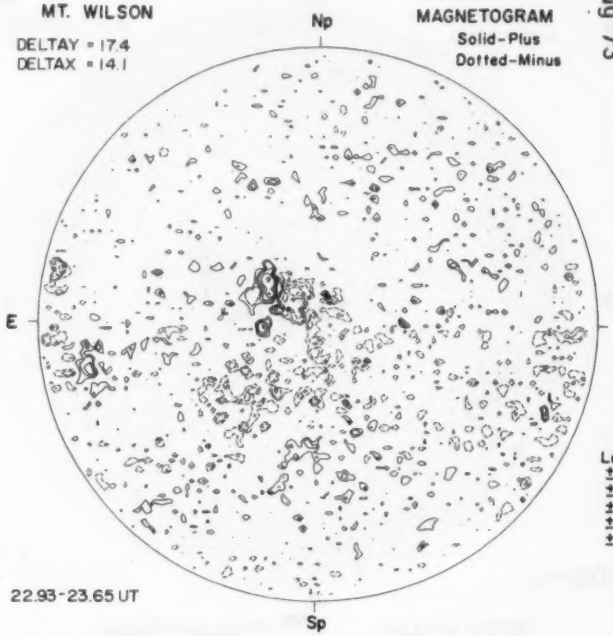
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

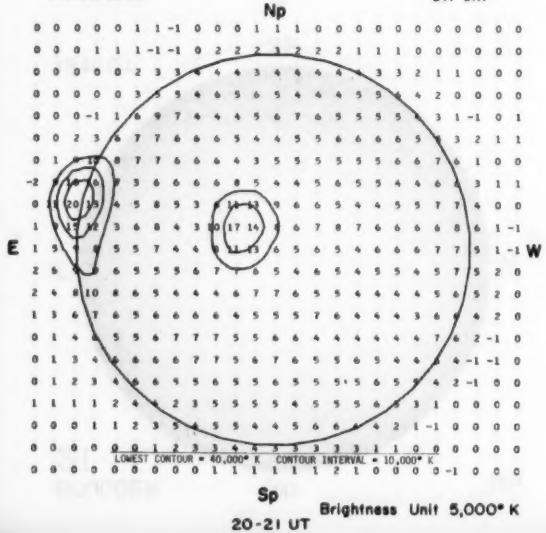


Levels
±5
±10
±20
±40
±80

22.93-23.65 UT

STANFORD

9.1 cm



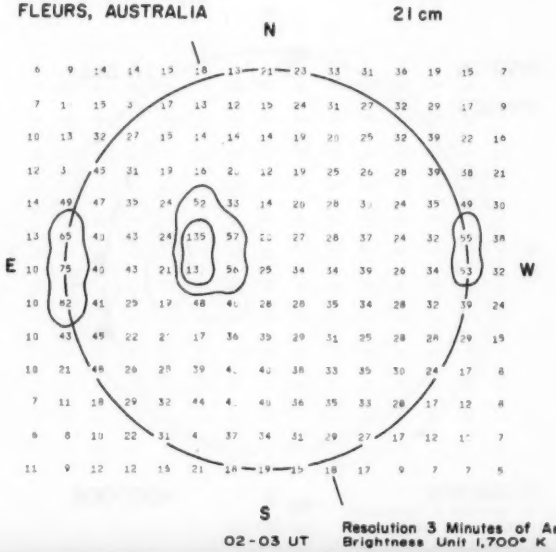
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

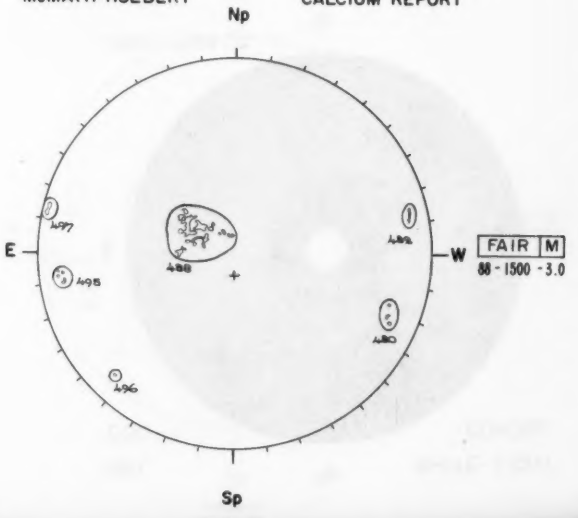


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

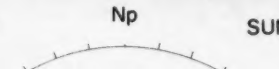


1320 UT

BOULDER
22

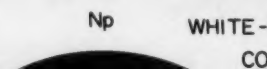
Hα

BOULDER



SUNSPOTS

NRL
OSO-7



WHITE-LIGHT
CORONA

BOULDER
22

Np

Hα

E

W

1825 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

CORONA

1355 UT

SAC PEAK

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0959-1236 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

E

W

COUNT = 45605
ROLL = 24.3°
P-TH = -2.01

1416 UT

Sp

Np

NRL
OSO-7

171-630A

E

W

1413 UT
COUNT = 228312

Sp

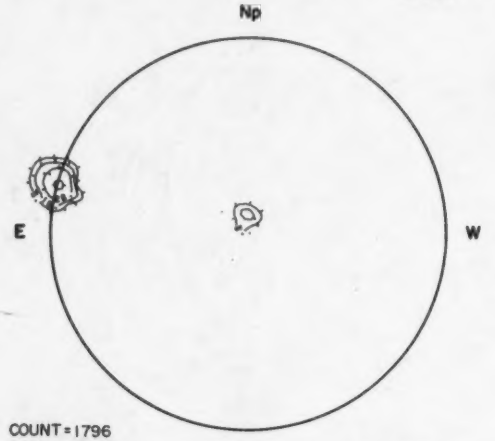
71
Aug 73

AUGUST 23, 1973 (P = 18.56, B_o = 6.98, L_o = 351.50)

72
Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



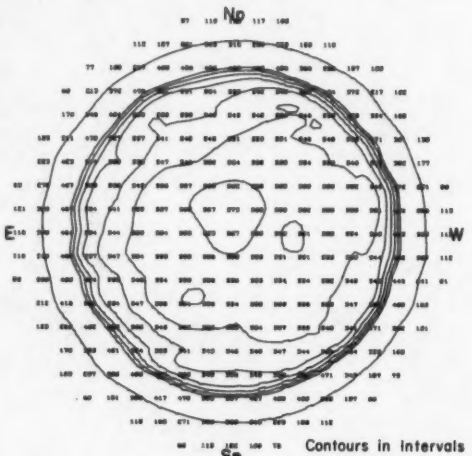
COUNT = 1796
ROLL = 25.0°
P-TH = -1.92

0850 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



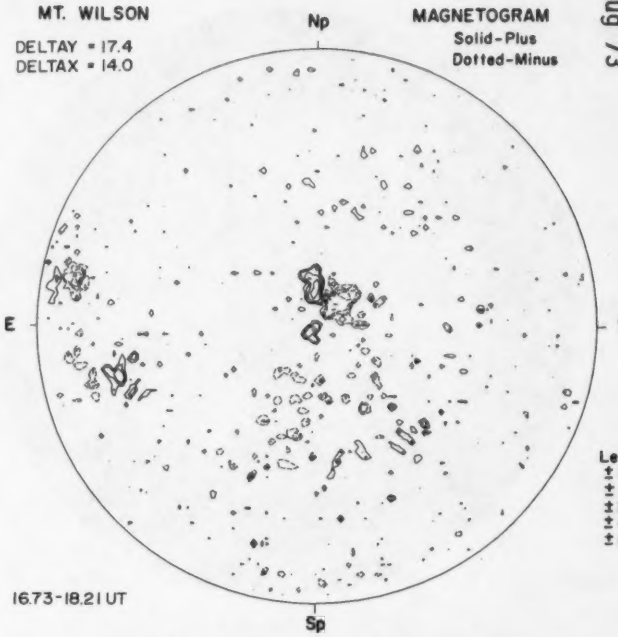
1412 UT

Contours in intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

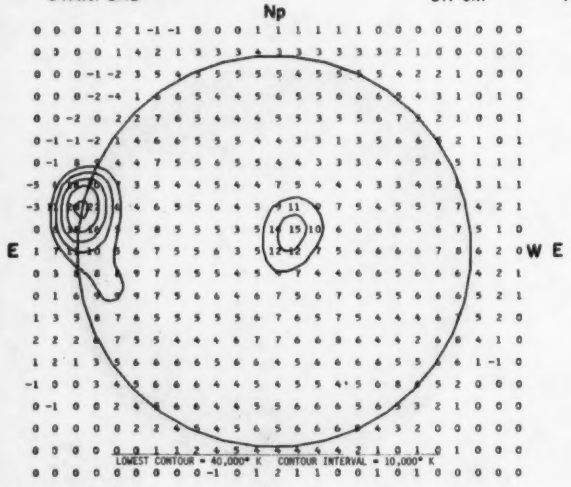


Levels
±5
±10
±20
±40
±80

16.73-18.21 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

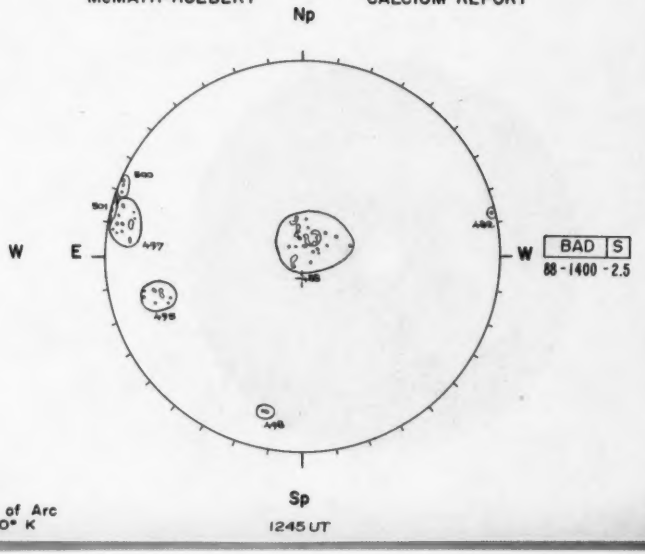
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1245 UT

Sp
20-21 UT
Brightness Unit 5,000° K

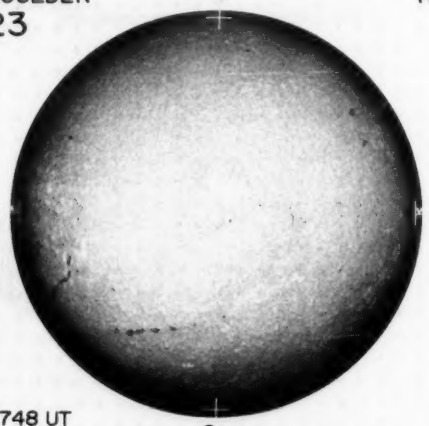
S
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1245 UT

BOULDER
23

Np

H α



E

W

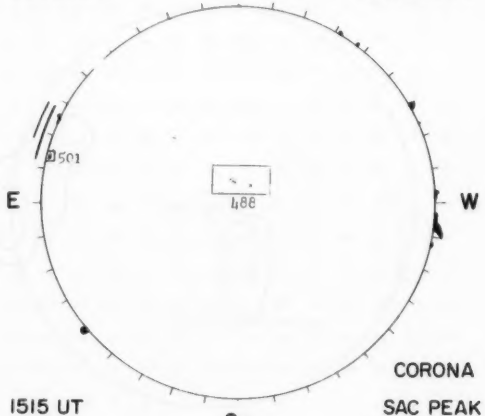
1748 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

1515 UT

SAC PEAK

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

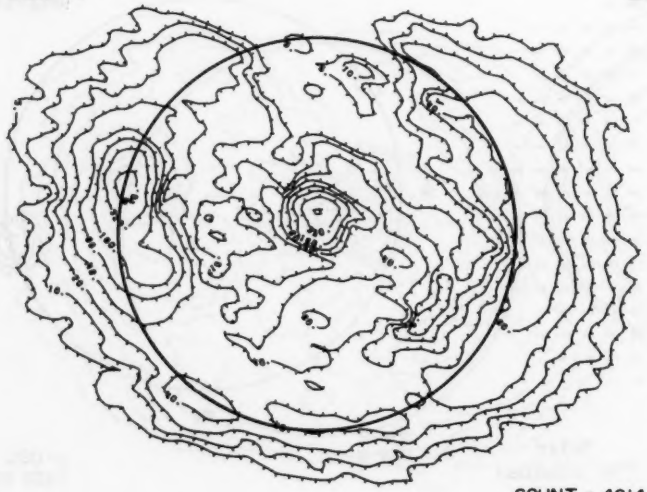
1131-1305 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 46144
ROLL = 25.0°
P-TH = -1.92

0850 UT

Sp

NRL
OSO-7

171-630A

E

NO DATA

W

COUNT =

Sp

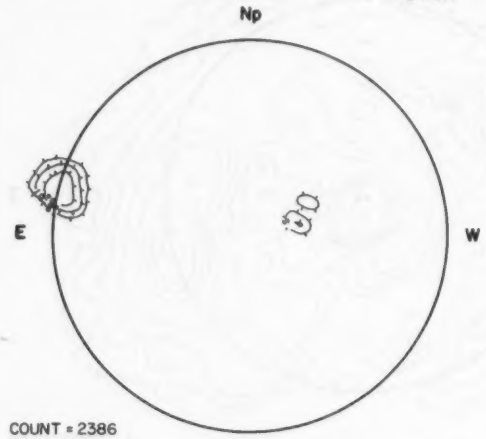
73
Aug 73

AUGUST 24, 1973 (P = 18.86, B_o = 7.01, L_o = 338.29)

74 Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



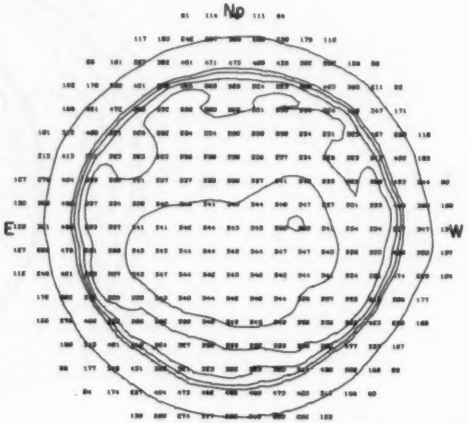
COUNT = 2386
ROLL = 26.0°
P-TH = -1.80

0918 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



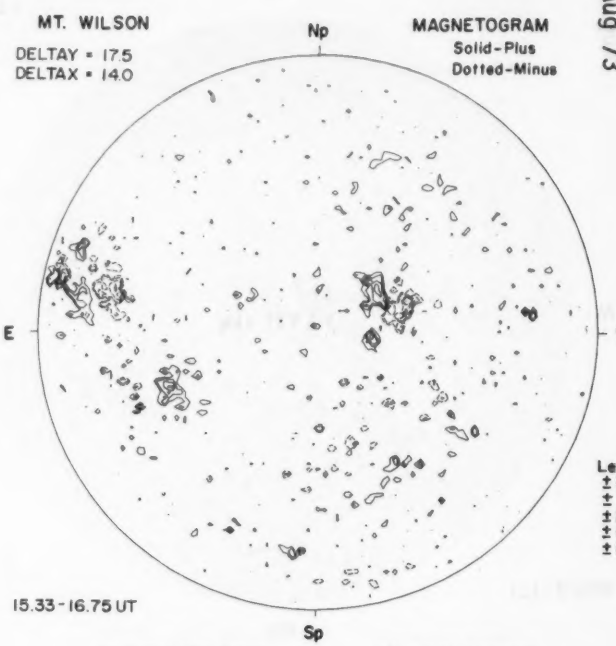
1858 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

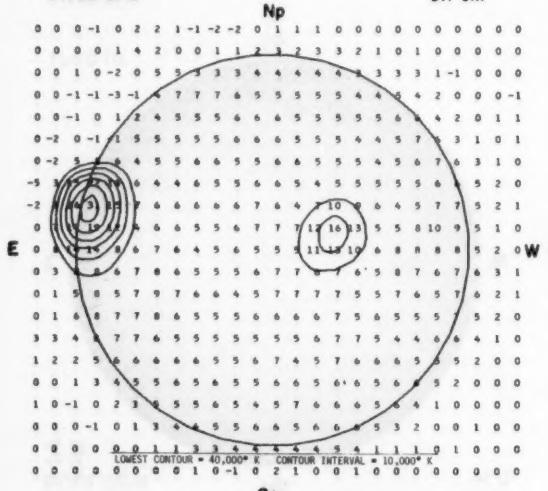


Levels
±5
±10
±20
±40
±80

15.33-16.75 UT

STANFORD

9.1 cm

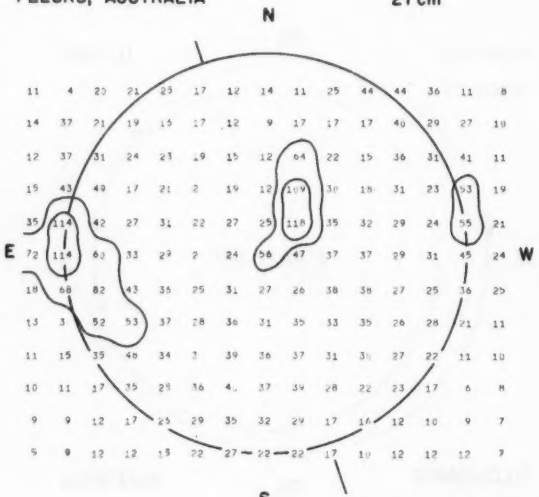


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

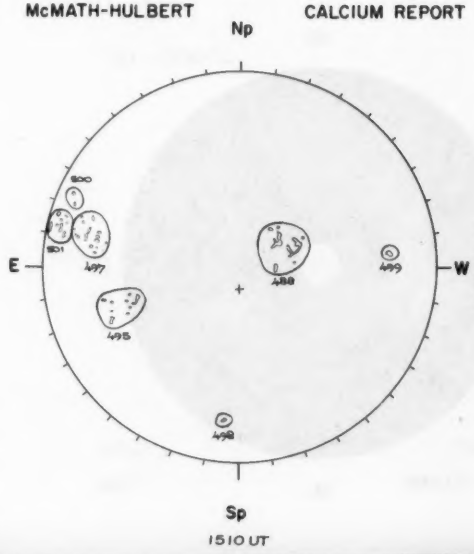


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1510 UT

Sp

20-21 UT Brightness Unit 5,000° K

S

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

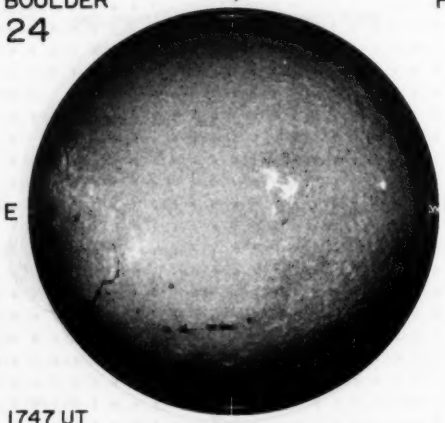
Sp

1510 UT

BOULDER
24

Np

Hα



E W

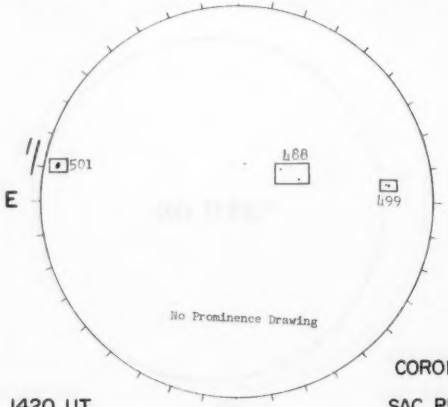
Sp

1747 UT

BOULDER

Np

SUNSPOTS



E W

CORONA

Sp

1420 UT

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

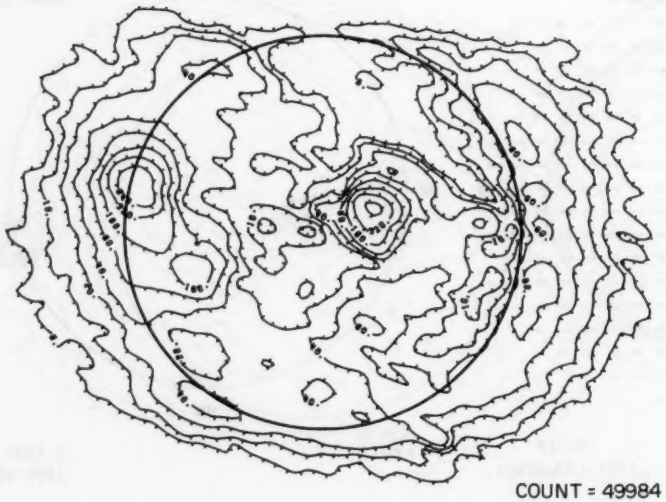
Sp

1157 - 1515 UT

Np

NASA GSFC
OSO - 7

FE XV
284A



E W

COUNT = 49984
ROLL = 26.0°
P-TH = -1.80

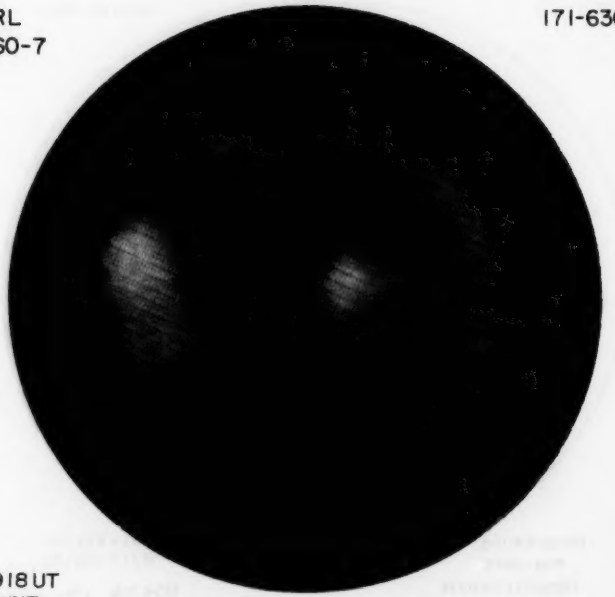
0918 UT

Sp

Np

NRL
OSO-7

171-630A



E W

0918 UT
COUNT = --

Sp

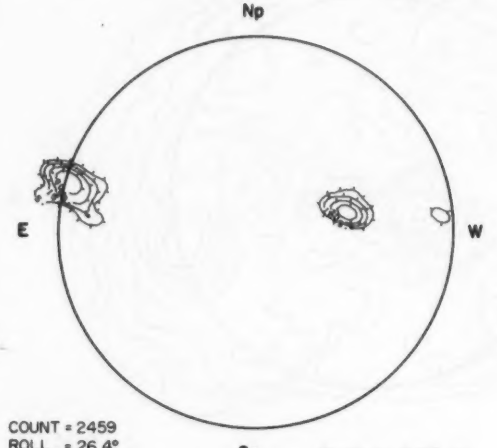
75
Aug 73

AUGUST 25, 1973 (P = 19.16, B_o = 7.04, L_o = 325.08)

76 Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



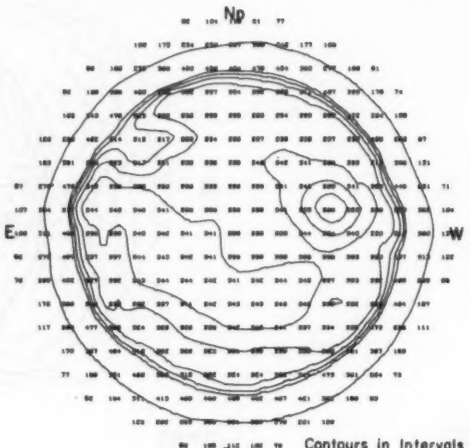
COUNT = 2459
ROLL = 26.4°
P-TH = -1.68

0809 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



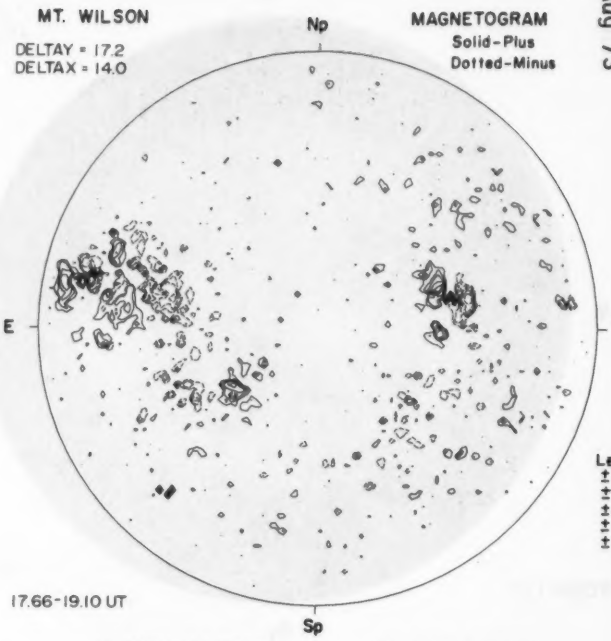
1723 UT

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.2
DELTAX = 14.0

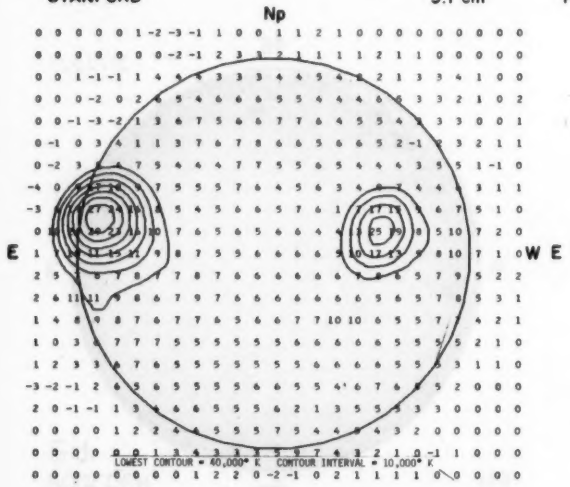


Levels
±5
±10
±20
±40
±80

17.66-19.10 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

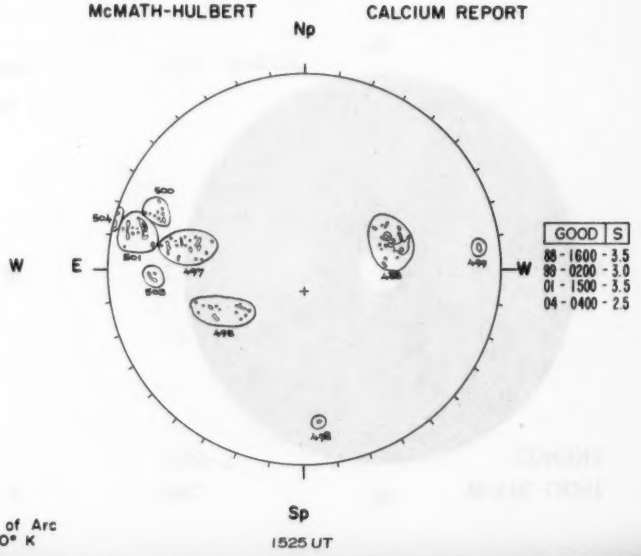
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1525 UT

Sp

Brightness Unit 5,000° K

20-21 UT

S

Resolution 3 Minutes of Arc

02-03 UT

Brightness Unit 1,700° K

Sp

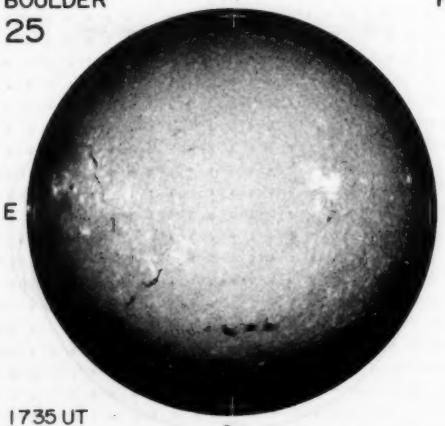
1525 UT

BOULDER

25

Np

Hα



E

W

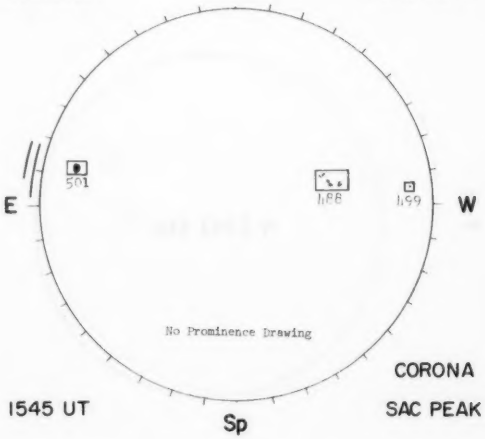
1735 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1545 UT

Sp

CORONA

SAC PEAK

NRL

OSO-7

Np

WHITE - LIGHT

CORONA

E

W

0944-1257 UT

Sp

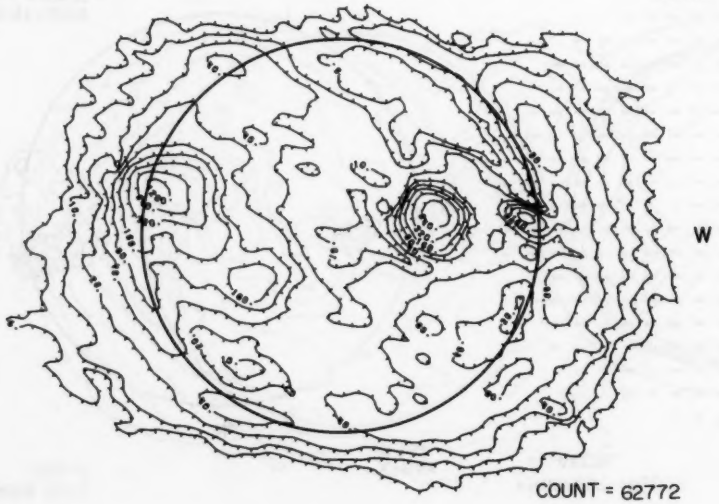
Np

NASA GSFC

OSO-7

FE XV

284A



E

W

COUNT = 62772

ROLL = 26.4°

P-TH = -1.68

0809 UT

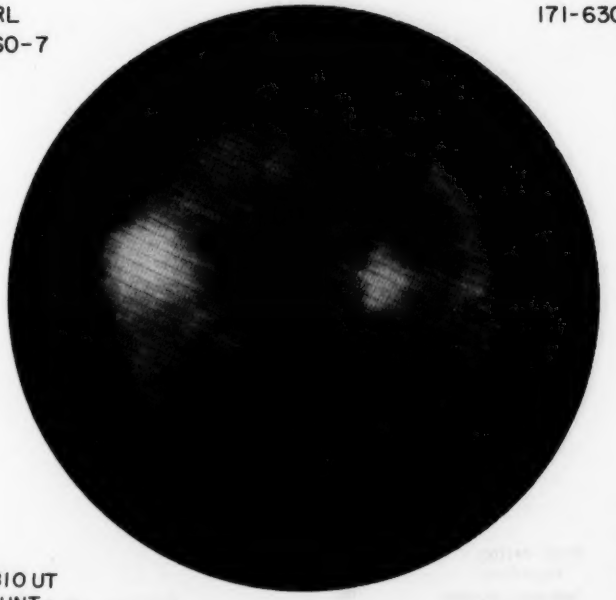
Sp

Np

NRL

OSO-7

171-630A



E

W

0810 UT

COUNT = --

Sp

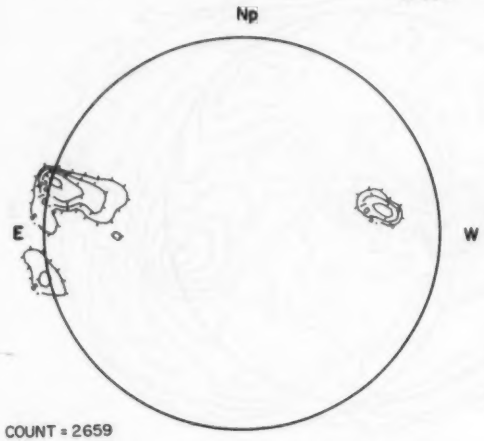
77

Aug 73

AUGUST 26, 1973 (P = 19.45, B_o = 7.07, L_o = 311.86)

NASA GSFC
OSO-7

X-RAY
8-16A



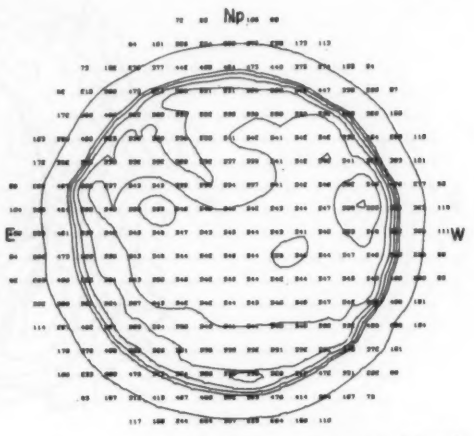
COUNT = 2659
ROLL = 26.5°
P-TH = -1.56

0837 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

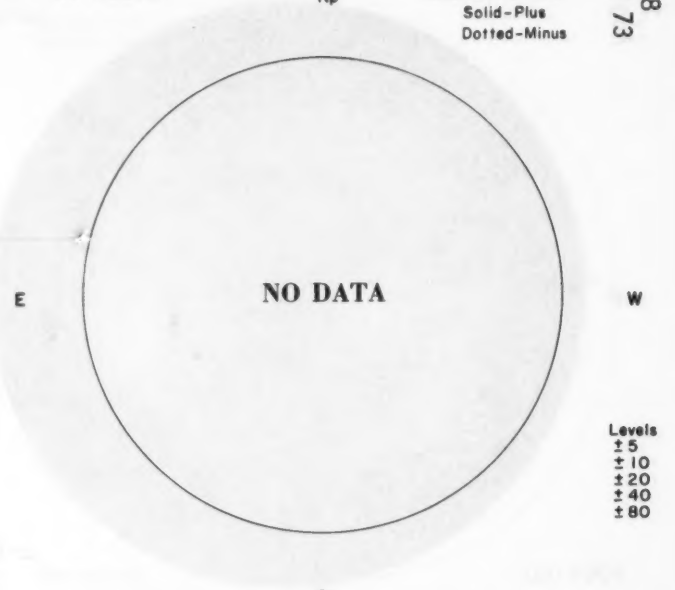


1433 UT

Contours in Intervals of 200° K

MT. WILSON

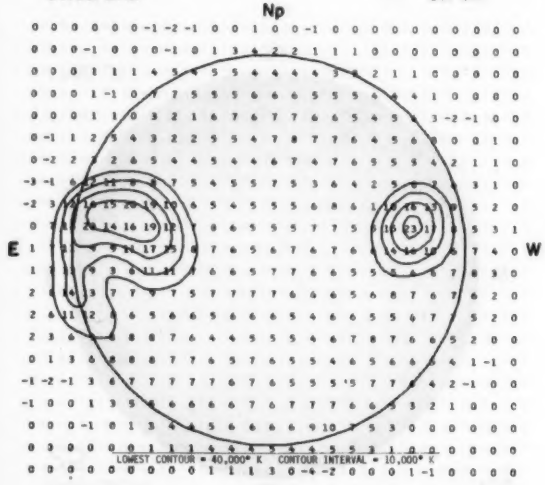
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

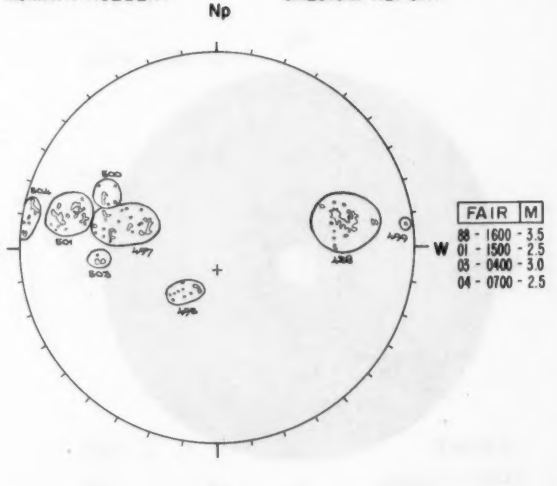
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1535 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

Np

WHITE-LIGHT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1535 UT

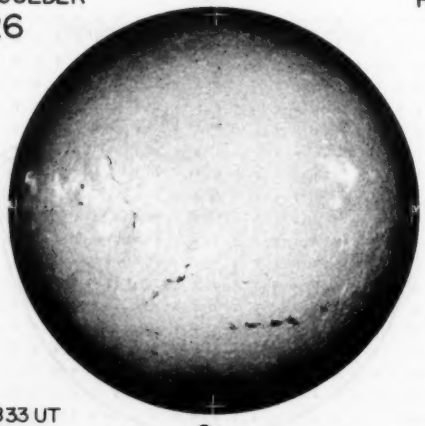
BOULDER
26

Np

Hα

E

W



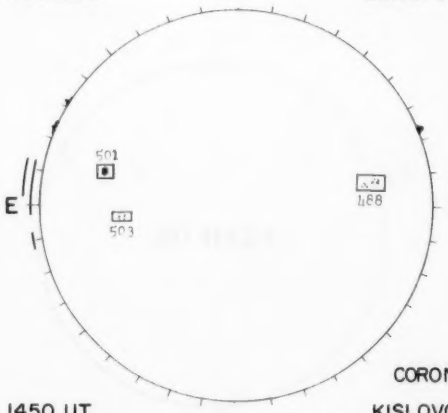
1833 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

1450 UT

KISLOVODSK

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1120-1435 UT

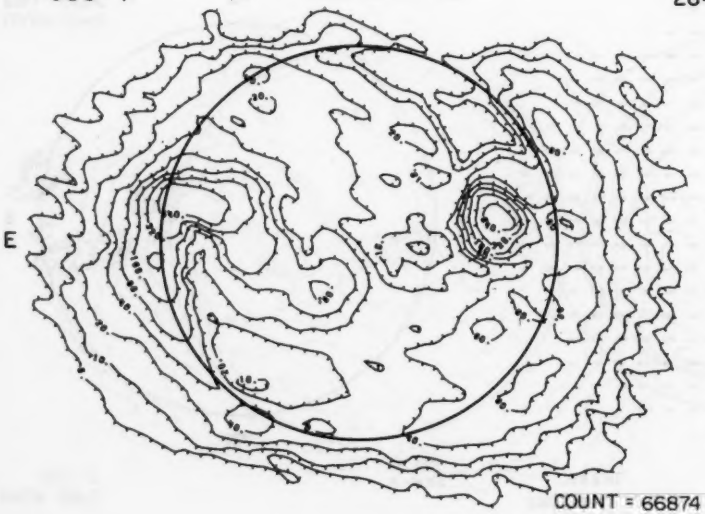
Sp

NASA GSFC
OSO-7

Np

FE XV
284A

E



W

COUNT = 66874
ROLL = 26.5°
P-TH = -1.56

0837 UT

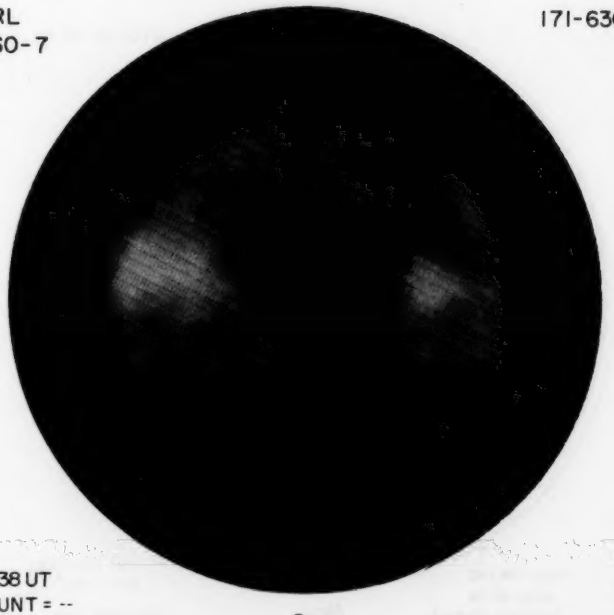
Sp

NRL
OSO-7

Np

171-630A

E



W

0838 UT
COUNT = --

Sp

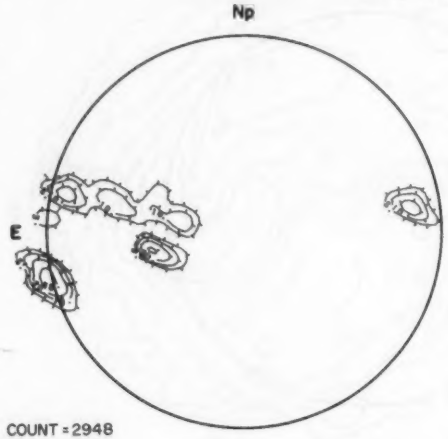
79
Aug 73

AUGUST 27, 1973 (P = 19.73, B_o = 7.10, L_o = 298.65)

80
Aug 73

NASA GSFC
OSO-7

X-RAY
8-16A



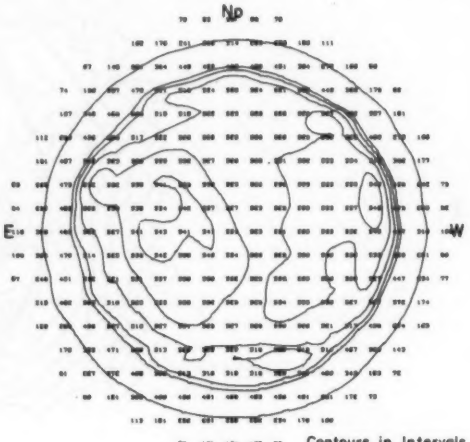
COUNT = 2948
ROLL = 27.1°
P-TH = -1.45

0732 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



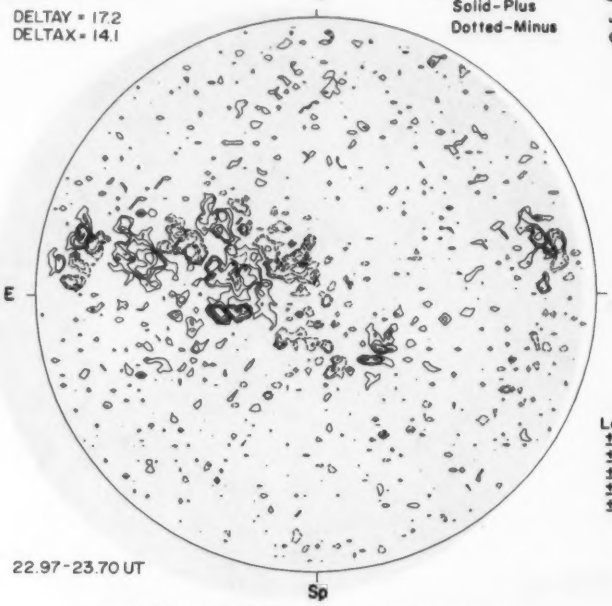
1449 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

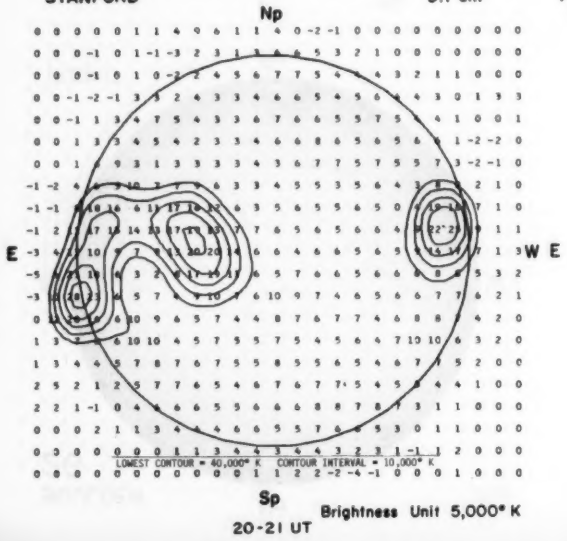


Levels
±5
±10
±20
±40
±80

22.97-23.70 UT

STANFORD

9.1 cm



Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

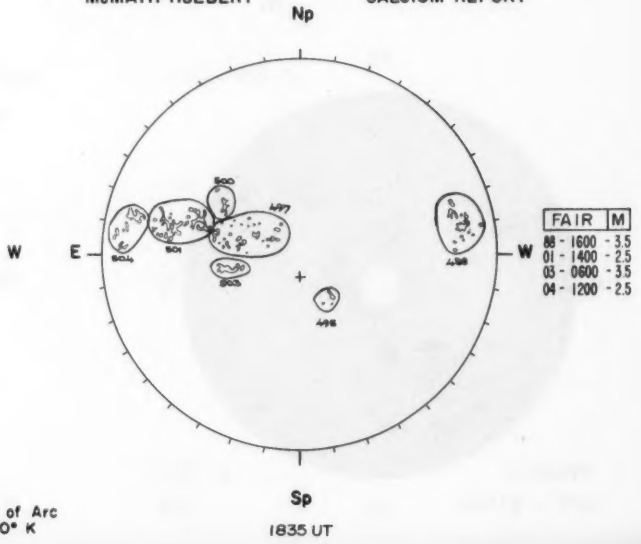
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

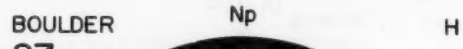
McMATH-HULBERT

CALCIUM REPORT



1835 UT

BOULDER

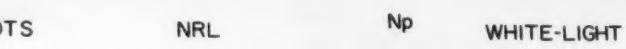


Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT

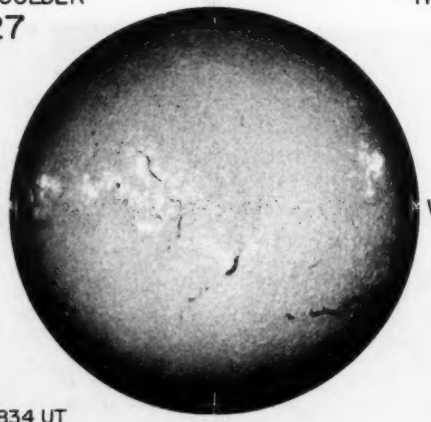
02-03 UT Brightness Unit 1,700° K

1835 UT

BOULDER
27

Np

Hα



E W

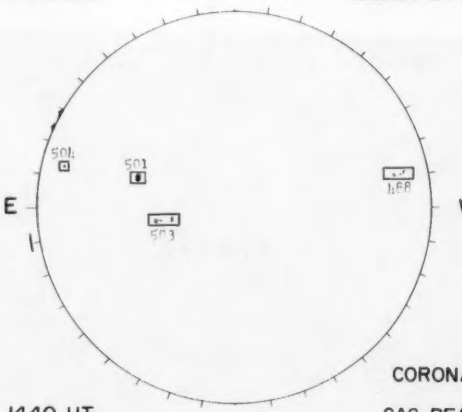
1834 UT

Sp

BOULDER

Np

SUNSPOTS



E W

CORONA

1440 UT

Sp

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

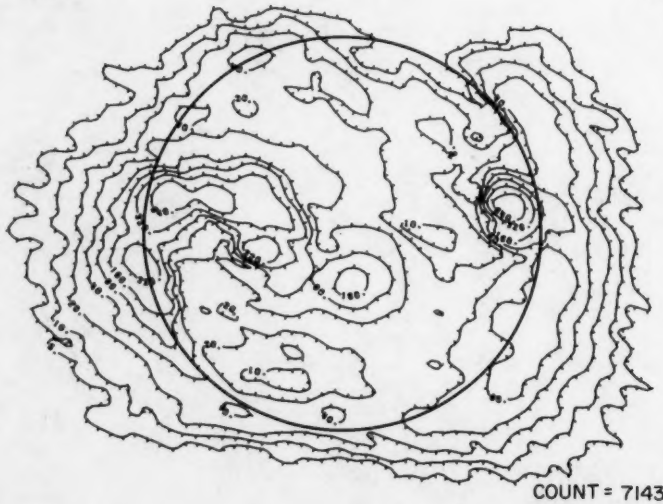
1039-1354 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

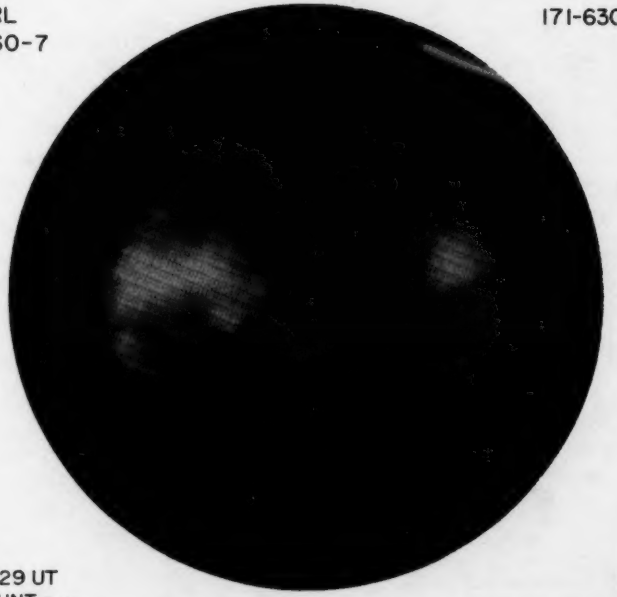
COUNT = 71430
ROLL = 27.1°
P-TH = -1.45

0732 UT

Sp

NRL
OSO-7

171-630A



E W

0729 UT
COUNT = --

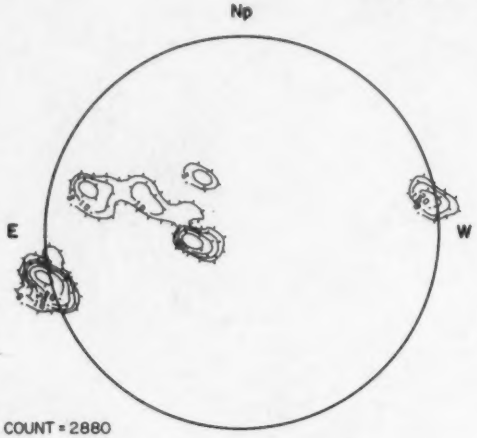
Sp

81
Aug 73

AUGUST 28, 1973 (P = 20.01, B_o = 7.12, L_o = 285.44)

NASA GSFC
OSO-7

X-RAY
8-16A



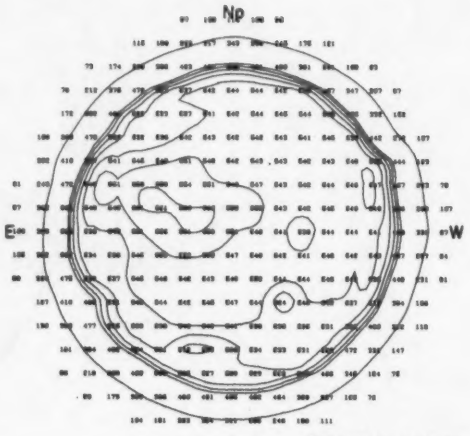
COUNT = 2880
ROLL = 28.4°
P-TH = -1.33

0624 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



1525 UT

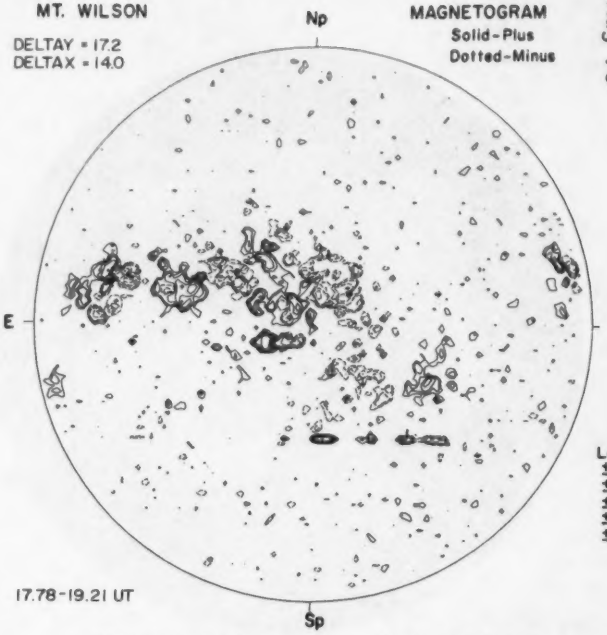
Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Aug 73 82

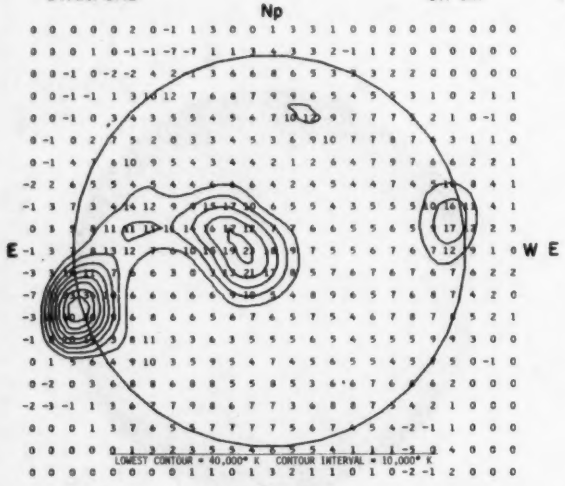


Levels
±5
±10
±20
±40
±80

17.78 - 19.21 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

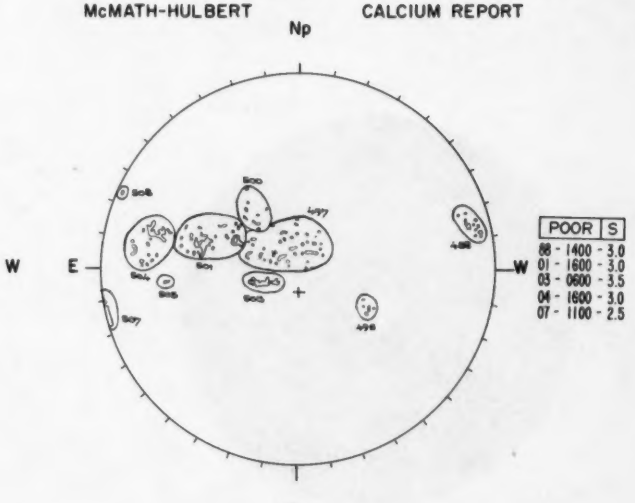
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

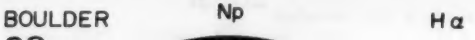
CALCIUM REPORT



POOR	S
88 - 1400 - 3.0	
01 - 1600 - 3.0	
03 - 0600 - 3.5	
04 - 1600 - 3.0	
07 - 1100 - 2.5	

1230 UT

BOULDER



Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

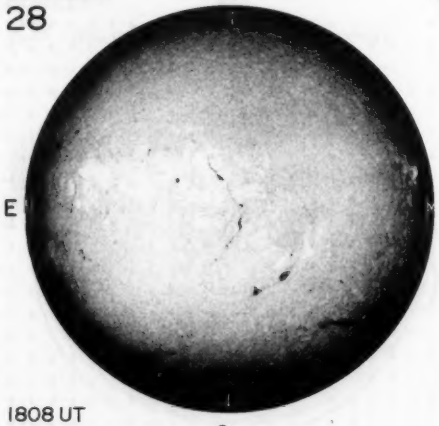
02-03 UT Brightness Unit 1,700° K

1230 UT

BOULDER
28

Np

Hα



E W

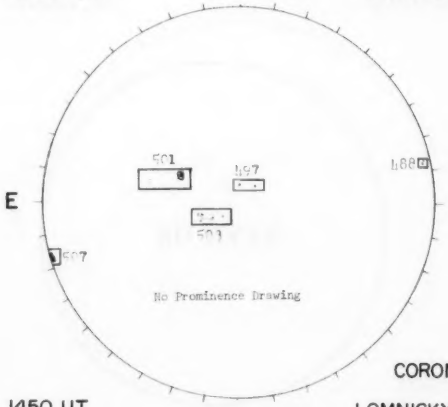
1808 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1450 UT

Sp

CORONA

LOMNICKY STIT

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

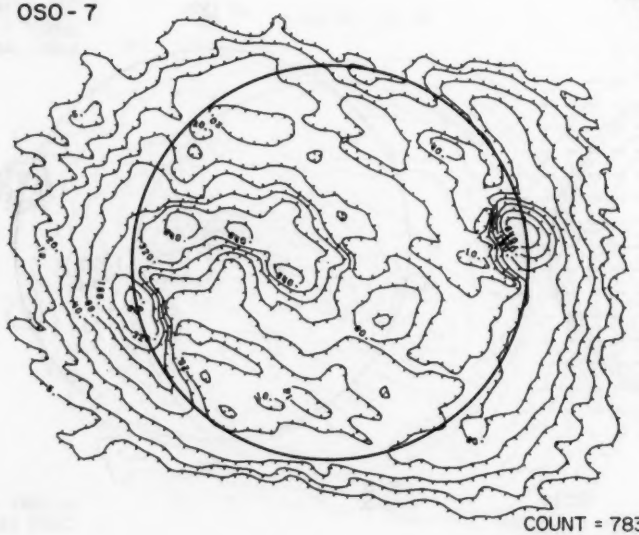
1214-1442UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 78336
ROLL = 28.4°
P-TH = -1.33

0624 UT

Sp

NRL
OSO-7

Np

171-630A

E W

0620 UT
COUNT = --

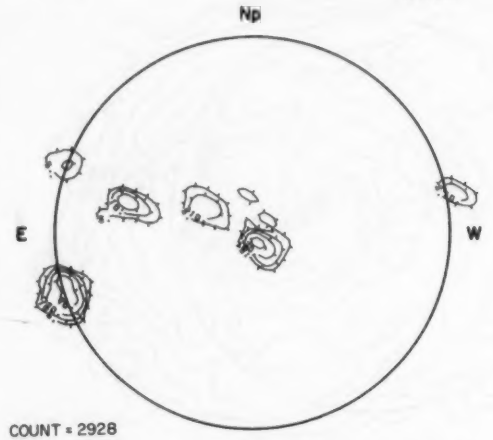
Sp

83
Aug 73

AUGUST 29, 1973 (P = 20.29, B_o = 7.14, L_o = 272.23)

NASA GSFC
OSO-7

X-RAY
8-16A



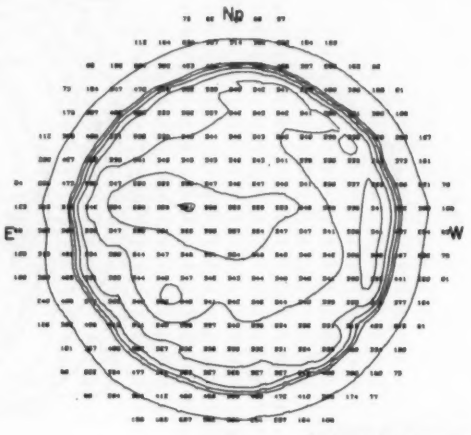
COUNT = 2928
ROLL = 29.5°
P-TH = -1.21

0652 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



1521 UT

Contours in Intervals of 200° K

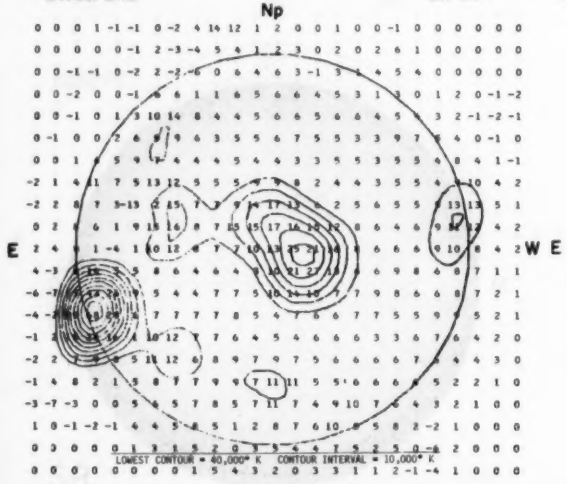
MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

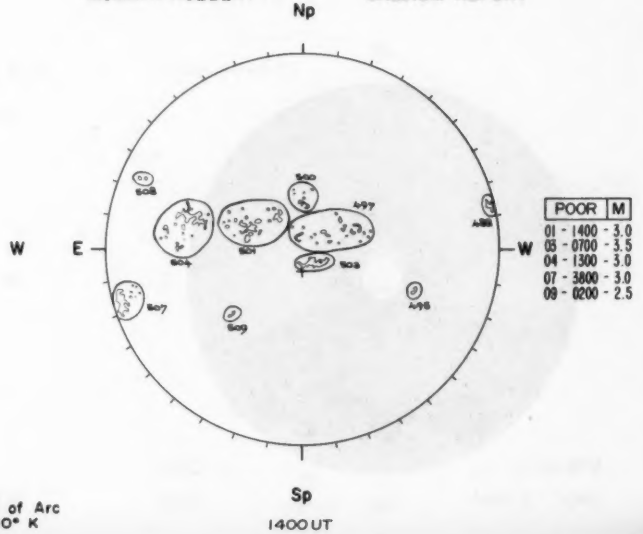
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1400 UT

Sp
20-21 UT
Brightness Unit 5,000° K

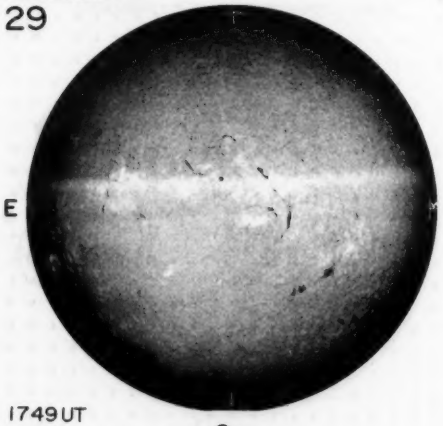
S
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1400 UT

BOULDER
29

Np

Hα



E

W

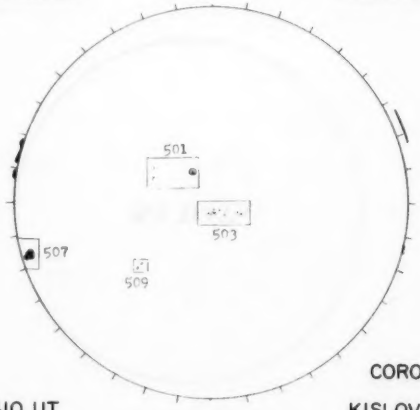
1749 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1410 UT

Sp

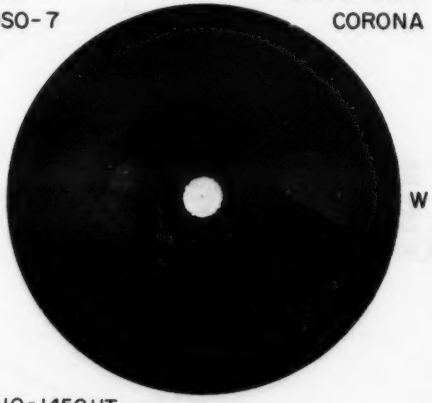
CORONA

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

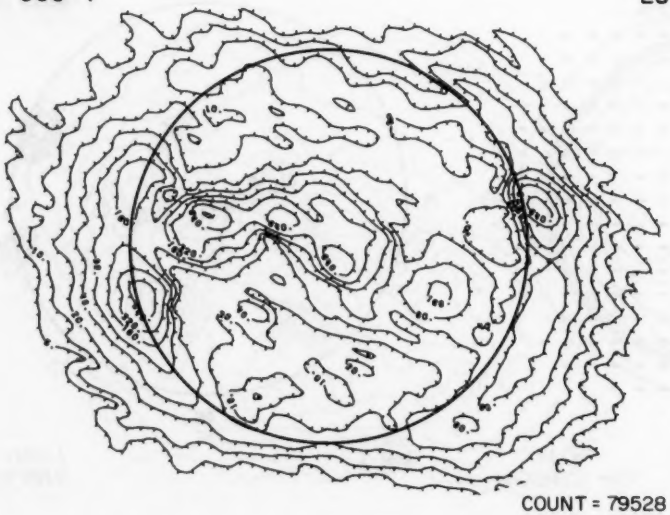
1110-1450 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 79528
ROLL = 29.5°
P-TH = -1.21

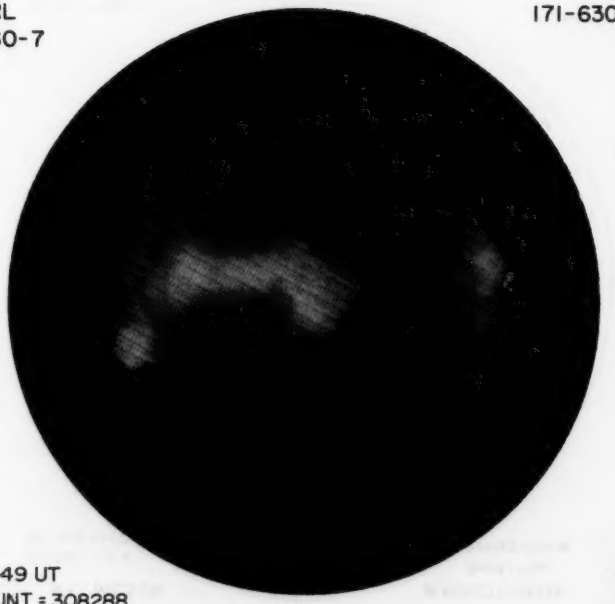
0652 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

0649 UT
COUNT = 308288

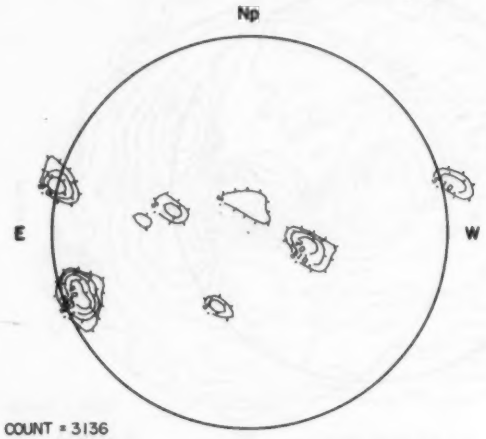
Sp

85
Aug 73

AUGUST 30, 1973 (P = 20.55, B_o = 7.16, L_o = 259.02)

NASA GSFC
OSO-7

X-RAY
8-16A



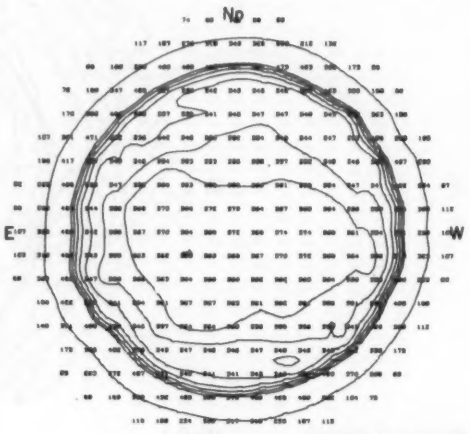
COUNT = 3136
ROLL = 31.0°
P-TH = -1.09

0717 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



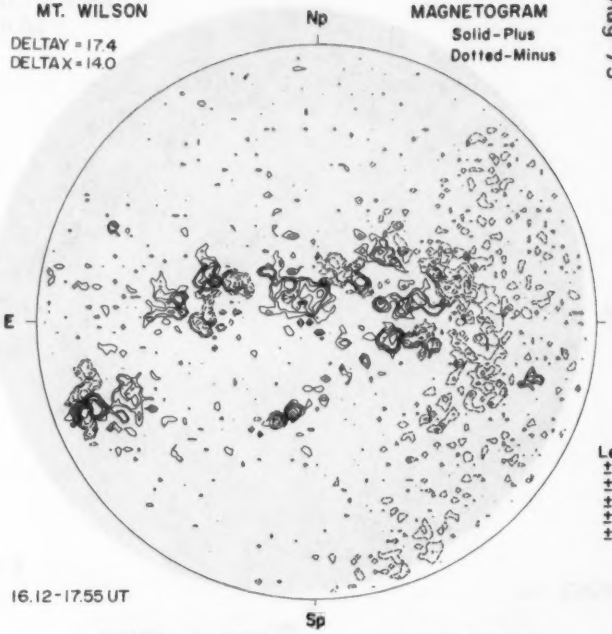
1352 UT

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

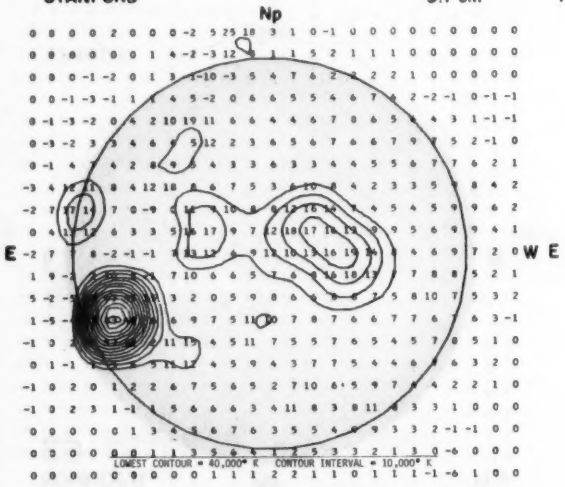


Levels
± 5
± 10
± 20
± 40
± 80

16.12-17.55 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

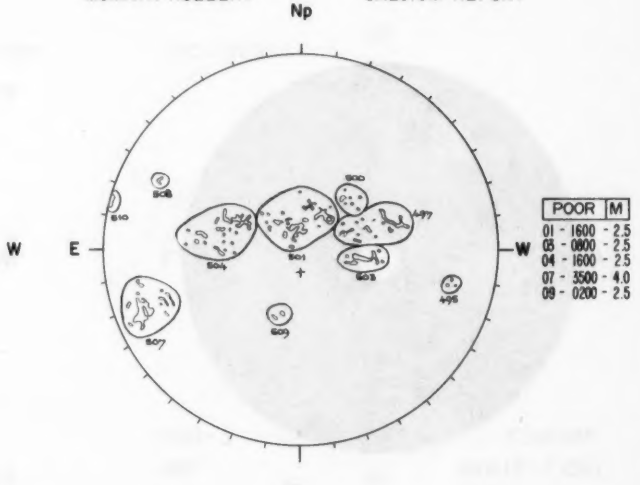
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1610 UT

RAMEY AFB

Hα

BOULDER

SUNSPOTS

Sp

20-21 UT

Brightness Unit 5,000° K

S

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

Sp

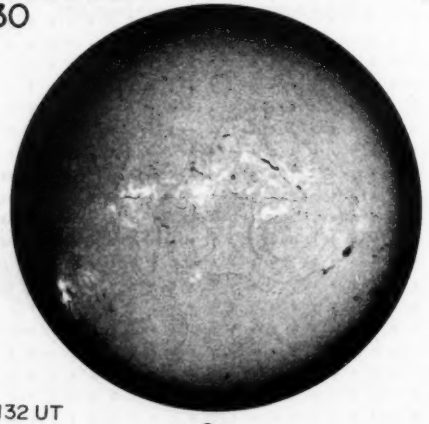
1610 UT

RAMEY AFB

30

Np

Hα



E

W

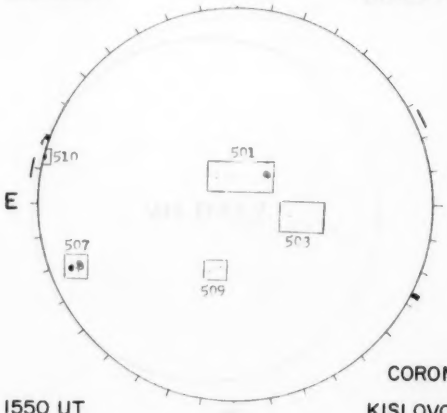
1132 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

1550 UT

Sp

KISLOVODSK

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

1144-1518UT

Sp

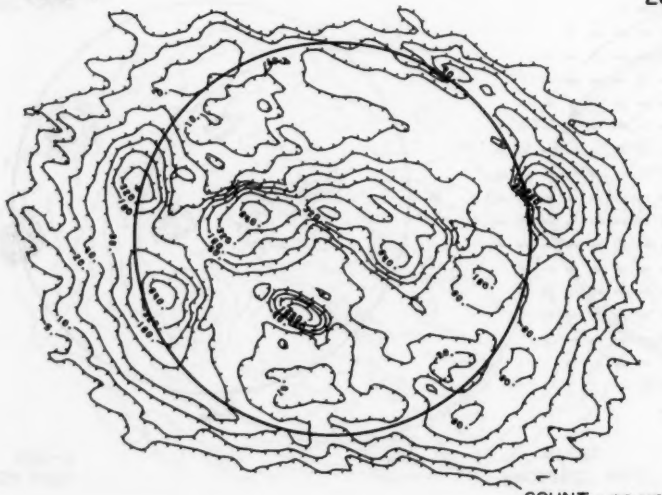
Np

NASA GSFC

OSO-7

FE XV

284A



E

W

COUNT = 82415

ROLL = 31.0°

P-TH = -1.09

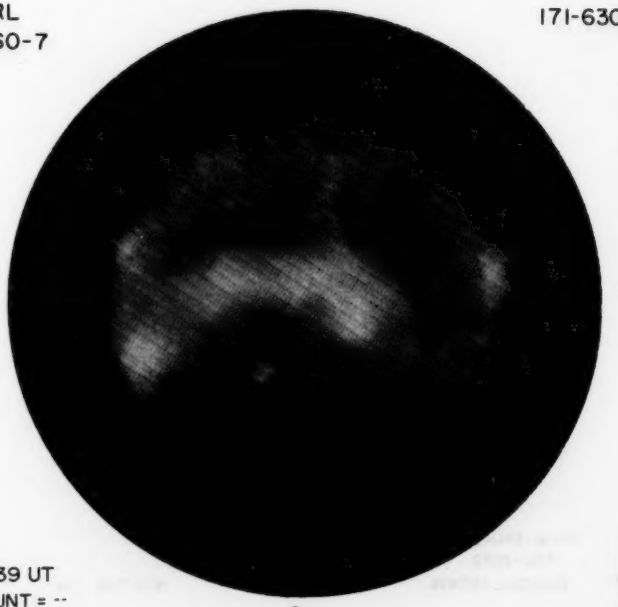
0717 UT

Sp

NRL

OSO-7

171-630A



E

W

0539 UT

COUNT = --

Sp

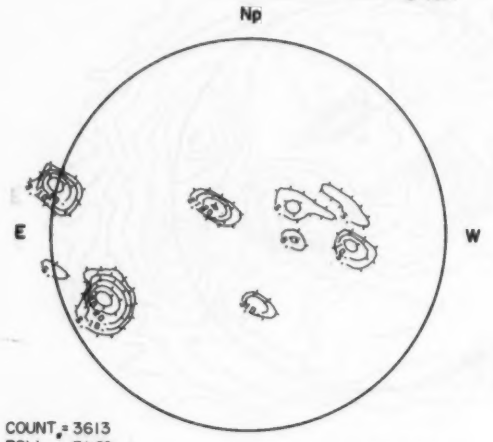
87

Aug 73

AUGUST 31, 1973 (P=20.82, B_o=7.18, L_o=245.81)

NASA GSFC
OSO-7

X-RAY
8-16A



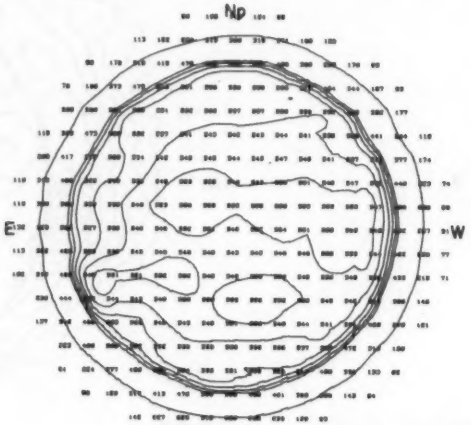
COUNT = 3613
ROLL = 31.6°
P-TH = -0.96

0744 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm



1419 UT

Contours in Intervals of 200° K

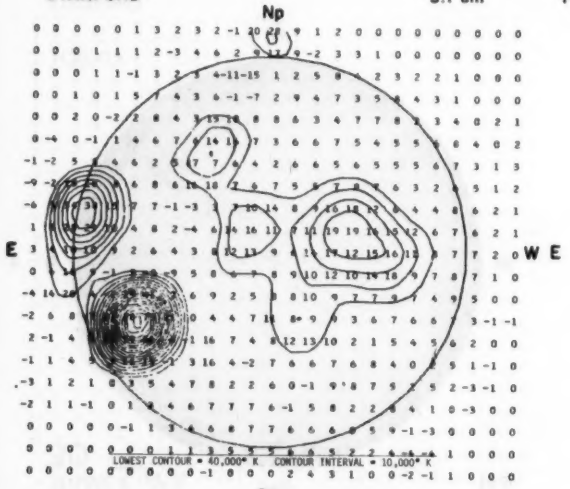
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

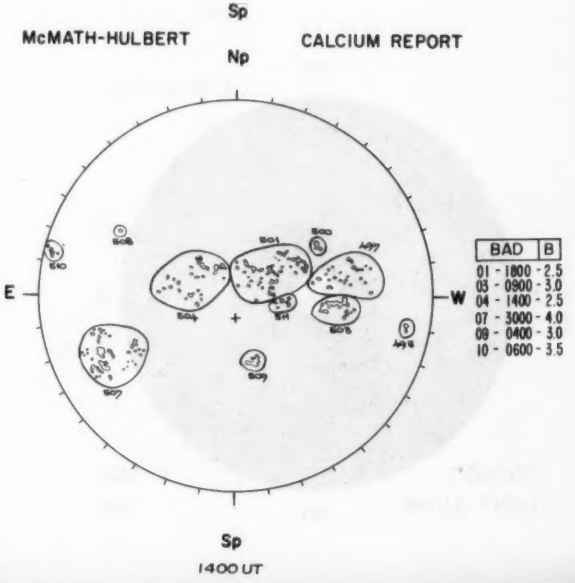
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1400 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

20-21 UT Brightness Unit 5,000° K

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

1400 UT

BOULDER
31

Np

H α

E

NO DATA

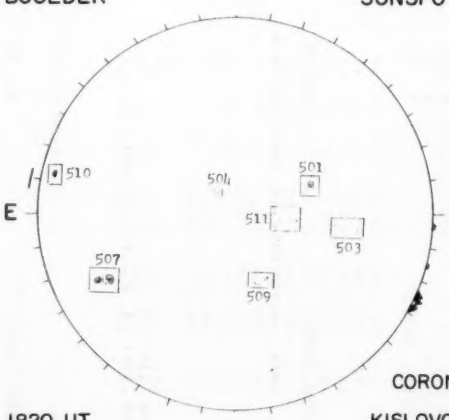
W

Sp

BOULDER

Np

SUNSPOTS



1820 UT

Sp

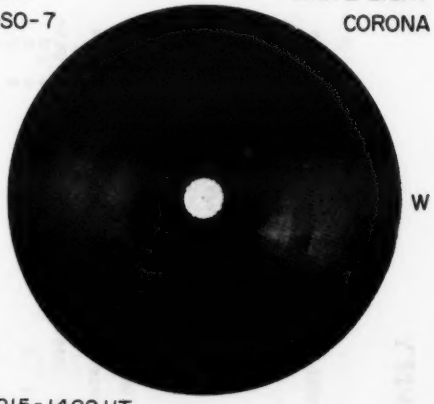
CORONA

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



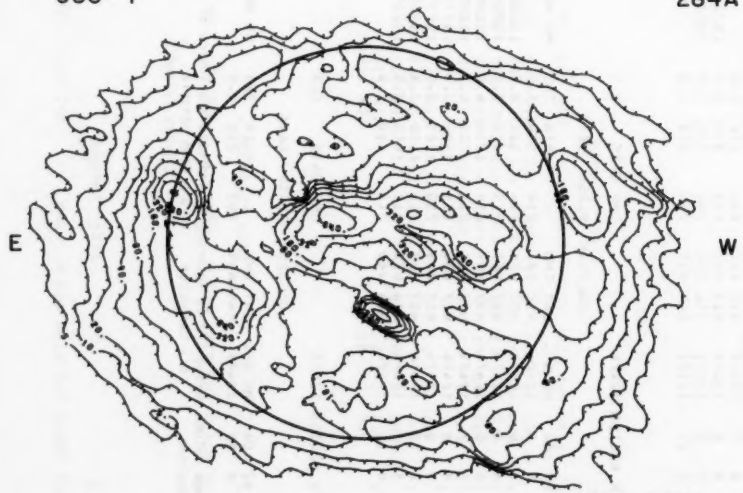
1015-1409 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT = 85249
ROLL = 31.6°
P-TH = -0.96

0744 UT

Sp

NRL
OSO-7

Np

171-630A

0741 UT
COUNT = --

Sp

89
Aug 73

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MCMATH REGION 12473 CMP DATE 1.4

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	2	12473	S03 W16	276	200	1.5											
73	8	3	12473	S03 W29	277	100	1.0											
73	8	4	12473	S03 W42	276	100	1.0											
73	8	5	12473	S03 W55	277	200	1.0											
73	8	6	12473	S03 W68	276	200	1.0											

MCMATH REGION 12461 CMP DATE 1.9 RETURN OF REGION 12417 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	26	12461	N12 E80	273	1900	3.0										8	3
73	7	27	12461	N13 E70	272	1800	2.5	19231	N12 E63	279	B						6	2
73	7	28	12461	N12 E54	275	1800	2.5										5	2
73	7	29	12461	N12 E42	275	2000	2.5	19231	N11 E35	280	AP						16	5
73	7	30	12461	N12 E28	273	2000	3.0	19231	N12 E26	276	(AP)	1					10	3
73	7	31						19231	N11 E11	273	(B)	2						
73	8	1	12461	N13 E02	270	2000	2.5	19231	N10 W05	278	(A)	2					10	3
73	8							19233	N18 E06	267	(A)	2						
73	8	2	12461	N13 W11	271	2200	2.5	19231	N11 W22	277	(	1					7	2
73	8							19233	N18 W09	264			B	0	1	AXX		
73	8	3	12461	N13 W23	271	2600	2.5	19231	N11 W27	273	(BP)	1					8	2
73	8							19233	N17 W18	264	(AF)	1						
73	8	4	12461	N13 W38	272	2500	2.0	19233	N17 W33	264							7	2
73	8	5	12461	N13 W50	272	2000	3.0										8	2
73	8	6	12461	N13 W62	270	1800	2.5										7	2
73	8	7	12461	N14 W76	269	1200	2.0										8	2
73	8	8	12461	N20 W83	264	1000	2.0										5	2

MCMATH REGION 12471 CMP DATE 4.3

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	1	12471	N14 E34	238	200	1.0											
73	8	2	12471	N15 E23	237	200	1.5											
73	8	3	12471	N15 E10	238	200	1.5											
73	8	4	12471	N15 W05	239	200	1.5											
73	8	5	12471	N15 W17	239	200	1.5											
73	8	6	12471	N15 W31	239	200	2.0											
73	8	7	12471	N15 W47	240	200	1.0											
73	8	8	12471	N15 W61	242	300	2.5	19237	N14 W66	246	(AP)	1						
73	8	9	12471	N16 W76	244	500	3.5	19237	N14 W81	248	(BF)	3	B	10	1	AXX		
73	8	10	12471	N15 W90	244	300	1.0											

MCMATH REGION 12474 CMP DATE 6.0

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	3	12474	N07 E32	216	100	1.5											
73	8	4	12474	N07 E20	214	500	3.5	19235	N06 E15	216	BF		B	30	11	BXI	6	2
73	8	5	12474	N07 E07	215	600	3.5	19235	N06 E02	216	(BF)	3	B	20	22	BXO	12	4
73	8	6	12474	N07 W07	215	1200	4.5	19235	N06 W10	217	(BP)	4	B	30	47	BXI	22	7
73	8	7	12474	N07 W21	214	1700	4.5	19235	N06 W24	217	(D)	5	G	250	38	DAI	28	9
73	8	8	12474	N07 W34	215	1900	4.0	19235	N07 W38	218	(D)	5	B	110	26	DSI	15	5
73	8	9	12474	N07 W48	216	1800	3.5	19235	N07 W52	219	(BP)	5	B	100	6	CSO	12	4
73	8	10	12474	N07 W62	216	1400	3.5	19235	N07 W72	221	(BP	4	B	60	7	CSO	10	3
73	8	11	12474	N08 W76	217	1600	3.5	19235	N07 W85	226	(AP)	4	B	50	1	HSX	35	10
73	8	12	12474	N08 W89	217	400	1.5		N11 W87				G	80	1	HSX	14	4

MCMATH REGION 12478 CMP DATE 6.9

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	10	12478	N45 W49	203	200	1.5											

The new column marked STA is inserted to indicate the source of data for sunspot area, count and classification.
B = Boulder C = Carnarvon G = Gran Canaria (Canary Islands) M = Manila

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MCMATH REGION 12472 CMP DATE 7.7 RETURN OF REGION 12439 & 12441 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	1	12472	S08 E78	194	1300	2.5		19234	S10 E79	194	(AP)	3	B	60	1	HSX	7	2
73	8	2	12472	S09 E67	193	1600	3.0		19234	S09 E49	206	(AP)	4	B	60	1	HSX	9	3
73	8	3	12472	S09 E54	194	1500	3.0		19234	S09 E50	196	(BP)	5	G	60	1	HSX	9	3
73	8	4	12472	S10 E40	194	1500	3.0		19234	S09 E35	196	AP		B	60	4	HSX	7	2
73	8	5	12472	S10 E28	194	1200	3.0		19234	S09 E22	196	(BP	4	B	60	1	HSX	5	2
73	8	6	12472	S10 E15	193	1500	3.0		19234	S09 E10	197	(AP)	4	B	60	1	HSX	5	1
73	8	7	12472	S10 E01	192	1300	2.5		19234	S11 W01	194	(BP)	5	G	70	1	HSX	5	1
73	8	8	12472	S10 W12	193	1500	3.0		19234	S10 W15	195	(BP	4	B	50	6	CSO	4	1
73	8	9	12472	S10 W25	193	1500	3.0		19234	S09 W30	197	(AP)	4	B	20	1	HRX	4	1
73	8	10	12472	S11 W39	193	1300	2.5		19234	S09 W48	197	(AP)	1	B	20	1	HRX		
73	8	11	12472	S10 W52	193	1500	2.0											4	1
73	8	12	12472	S10 W65	193	1300	2.0											4	1
73	8	13	12472	S10 W76	192	1000	1.5											4	1
73	8	14	12472	S13 W80	181	400	1.0												

MCMATH REGION 12479 CMP DATE 8.7

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	11	12479	S11 W38	179	100	1.0												
73	8	12	12479	S11 W51	179	100	1.0												

MCMATH REGION 12475 CMP DATE 10.5 RETURN OF REGION 12431 ROTATION 7

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	4	12475	N12 E80	154	300	1.0												
73	8	5	12475	N15 E66	156	500	1.5												
73	8	6	12475	N15 E54	154	700	2.0												
73	8	7	12475	N15 E40	153	600	2.0												
73	8	8	12475	N15 E26	155	600	2.0												
73	8	9	12475	N15 E13	155	600	2.0												
73	8	10	12475	N15 W03	157	600	2.0												
73	8	11	12475	N14 W16	157	600	2.0											5	2
73	8	12	12475	N15 W28	156	600	2.0												
73	8	13	12475	N15 W40	156	800	2.0			*N12 E18				C	0	2	BXO		
73	8	14	12475	N15 W55	156	800	2.0			*N16 E05				G	10	1	AXX	3	1
73	8									*N14 E01				G	10	2	BXO		
73	8	15	12475	N15 W67	156	800	2.0												
73	8	16	12475	N15 W78	155	600	1.5												
73	8	17	12475	N17 W85	147	300	1.0												

MCMATH REGION 12476 CMP DATE 11.1

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	5	12476	S05 E80	142	200	1.0												
73	8	6	12476	S05 E64	144	300	3.0		19236	S07 E60	147	(BP)	2	B	10	1	AXX		
73	8	7	12476	S07 E50	143	400	3.0		19236	S08 E47	146	(BP)	2	G	20	2	CRO	4	1
73	8	8	12476	S07 E36	145	700	3.0		19236	S08 E34	146	(BP)	2	B	10	9	BXI	5	2
73	8	9	12476	S07 E22	146	800	3.0		19236	S08 E19	148	(BP)	3	B	20	13	BXI	3	1
73	8	10	12476	S07 E06	148	600	3.0		19236	S08 E01	148	(BP	1	B	10	5	BXO	3	1
73	8	11	12476	S07 W07	148	600	3.0											3	1
73	8	12	12476	S07 W18	146	600	2.5			S12 W15				G	0	1	AXX		
73	8	13	12476	S07 W31	147	500	2.5		*19238	S09 W02	111	(B)	1					3	1
73	8	14	12476	S07 W46	147	500	3.0			S12 W36				G	20	4	CRO		
73	8	15	12476	S07 W58	147	500	2.5			S11 W52				B	0	1	AXX	3	1
73	8									*S06 W32				B	10	5	BXO		
73	8	16	12476	S07 W71	148	300	1.5												

MCMATH REGION 12489 CMP DATE 13.3

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	18	12489	N08 W70	118	100	1.5												

MCMATH REGION 12485 CMP DATE 14.7

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	17	12485	N22 W38	100	100	1.5												

* No plage observed at McMath-Hulbert for these spots.

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MCMATH REGION 12486 CMP DATE 14.8

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	17	12486	N07 W37	99	100	1.5										
73	8	18	12486	N07 W50	98	200	1.0										

MCMATH REGION 12483 CMP DATE 16.2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	16	12483	N17 W04	81	300	2.5	19239	N17 W05	81	(AP)	1	B	0	1	AXX	
73	8	17	12483	N17 W17	79	300	2.0										
73	8	18	12483	N18 W31	79	200	1.0										
73	8	19	12483	N18 W45	80	100	1.0										
73	8	20	12483	N18 W61	82	100	1.0										

MCMATH REGION 12482 CMP DATE 17.8

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	15	12482	N14 E30	59	300	1.5										
73	8	16	12482	N14 E18	59	200	1.5										
73	8	17	12482	N14 E03	59	200	1.0										
73	8	18	12482	N14 W09	57	300	1.5										
73	8	19	12482	N14 W23	58	300	1.5										
73	8	20	12482	N14 W39	60	300	1.5										
73	8	21	12482	N14 W52	62	500	1.5										
73	8	22	12482	N14 W66	62	200	1.5										
73	8	23	12482	N14 W80	65	100	1.0										

MCMATH REGION 12480 CMP DATE 18.6 RETURN OF REGION 12442 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	12	12480	S15 E80	48	100	1.5										3 1
73	8	13	12480	S13 E67	49	300	1.5										4 1
73	8	14	12480	S13 E52	49	300	1.5										3 1
73	8	15	12480	S12 E39	50	400	1.5										3 1
73	8	16	12480	S11 E26	51	400	1.5										
73	8	17	12480	S11 E13	49	400	1.5										
73	8	18	12480	S12 W02	50	400	1.0										
73	8	19	12480	S12 W15	50	400	1.0										
73	8	20	12480	S12 W30	51	300	1.0										
73	8	21	12480	S12 W42	52	200	1.5										
73	8	22	12480	S14 W54	50	200	1.5										

MCMATH REGION 12487 CMP DATE 20.0

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	17	12487	N23 E32	30	100	1.5										

MCMATH REGION 12499 CMP DATE 20.8

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	24	12499	N09 W50	20	200	3.0	19242	N10 W53	21	(BF)	4	B	10	6	AXX	
73	8	25	12499	N09 W66	23	200	3.0	19242	N09 W64	21	(AF)	3	B	10	1	AXX	
73	8	26	12499	N08 W79	22	100	1.0										

MCMATH REGION 12484 CMP DATE 21.0 RETURN OF REGION 12451 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	8	15	12484	N07 E69	20	200	1.0										4 1
73	8	16	12484	N07 E56	21	200	1.5										3 1
73	8	17	12484	N07 E45	17	100	1.5										

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MCMATH REGION 12493 CMP DATE 22.3

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	21	12493	S01 E09	1	200	1.0											

MCMATH REGION 12488 CMP DATE 23.5

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	17	12488	N10 E82	341	1000	3.0	19240	N14 E76	347	B						5	2
73	8	18	12488	N12 E67	342	1000	3.0	19240	N14 E63	347	(BP	2	B	0	1	AXX	6	2
73	8	19	12488	N13 E54	342	1300	2.5	19240	N14 E50	347	(BP	2	B	10	6	BXO	4	1
73	8	20	12488	N13 E37	345	1300	2.5		N13 E37				B	0	7	BXO	6	2
73	8	21	12488	N13 E25	346	1500	3.0	19240	N13 E24	345	(B)	4	B	10	17	BXO	9	3
73	8	22	12488	N13 E13	344	1500	3.0	19240	N13 E12	344	(BF)	3	G	20	3	CSO	6	2
73	8	23	12488	N13 W01	346	1400	2.5	19240	N12 W01	344	(B)	4	B	10	10	BXO	5	2
73	8	24	12488	N13 W14	344	1200	2.5	19240	N14 W18	346	B		B	0	2	BXO	5	2
73	8	25	12488	N13 W30	347	1600	3.5	19240	N13 W31	348	(B)	4	B	30	28	BXO	9	3
73	8	26	12488	N13 W43	346	1600	3.5	19240	N13 W50	348	BP		B	20	18	BXO	9	3
73	8	27	12488	N13 W58	346	1600	3.5	19240	N13 W61	349	(BP)	3	B	10	9	BXO	10	3
73	8	28	12488	N14 W69	348	1400	3.0	19240	N13 W78	353	(AP)	2	G	20	3	BXO	6	2
73	8	29	12488	N14 W82	347	900	2.0										4	1

MCMATH REGION 12494 CMP DATE 24.9

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	21	12494	S27 E44	327	100	1.5											

MCMATH REGION 12498 CMP DATE 25.1

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	23	12498	S45 E16	329	200	1.5											
73	8	24	12498	S45 E06	324	200	1.5											
73	8	25	12498	S45 W07	324	100	1.0											

MCMATH REGION 12492 CMP DATE 25.3

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	20	12492	S15 E60	322	100	1.0											
73	8	21	12492	S15 E49	322	100	1.5											

MCMATH REGION 12490 CMP DATE 25.8

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	19	12490	N38 E82	314	100	1.5											

MCMATH REGION 12491 CMP DATE 25.9

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	19	12491	N18 E87	309	100	1.0											
73	8	20	12491	N18 E69	313	100	1.5											
73	8	21	12491	N16 E57	314	100	1.0											

MCMATH REGION 12496 CMP DATE 26.2

			CALCIUM	PLAGE	DATA			SUNSPOT	DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	22	12496	S34 E48	309	100	2.0											

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MCMATH REGION 12495 CMP DATE 27.3 RETURN OF REGION 12460 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	21	12495	S06 E77	294	300	1.5											
73	8	22	12495	S05 E63	294	300	1.5											
73	8	23	12495	S05 E48	297	300	1.5											
73	8	24	12495	S06 E35	295	500	1.5											
73	8	25	12495	S06 E22	295	500	1.5											
73	8	26	12495	S06 E09	294	300	2.0											
73	8	27	12495	S05 W08	296	300	2.0											
73	8	28	12495	S06 W21	300	300	2.0											
73	8	29	12495	S06 W35	300	200	2.0											
73	8	30	12495	S06 W50	301	200	1.5											
73	8	31	12495	S06 W62	300	200	1.0											

MCMATH REGION 12497 CMP DATE 28.8 RETURN OF REGION 12461 ROTATION 4

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	22	12497	N14 E84	273	400	2.0										7	2
73	8	23	12497	N14 E70	275	900	2.0											
73	8	24	12497	N14 E53	277	900	2.0											
73	8	25	12497	N13 E39	278	800	2.0											
73	8	26	12497	N14 E28	275	1000	2.0											
73	8	27	12497	N14 E13	275	900	2.0											
73	8	28	12497	N14 E03	276	900	2.0											
73	8	29	12497	N13 W10	275	800	2.0											
73	8	30	12497	N13 W24	275	1200	2.0											
73	8	31	12497	N13 W36	274	1200	1.5											
73	9	1	12497	N13 W50	273	1300	2.0											
73	9	2	12497	N13 W62	272	1100	2.0											
73	9	3	12497	N13 W75	272	900	1.5											
73	9	4	12497	N13 W87	271	600	1.0											

MCMATH REGION 12503 CMP DATE 29.4

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	25	12503	N03 E50	267	300	2.0											
73	8	26	12503	N03 E36	267	400	3.0	19243	N02 E30	268	BF		B	10	7	BXO		
73	8	27	12503	N03 E21	267	600	3.5	19243	N02 E19	269	(BF)	4	B	20	17	BXO	8	3
73	8	28	12503	N03 E11	268	600	3.5	19243	N02 E05	270	(BF)	4	G	100	30	DAI	8	3
73	8	29	12503	N03 W04	269	700	3.5	19243	N02 W06	270	(B)	3	B	30	30	BXI	13	4
73	8	30	12503	N03 W17	268	800	2.5	19243	N02 W21	271	(BP)	3	B	20	20	BXO	7	2
73	8	31	12503	N03 W31	269	900	3.0	19243	N02 W34	271	(B)	3	G	60	6	DRO		
73	9	1	12503	N03 W46	269	1200	3.5	19243	N03 W49	271	(BP)	2	B	10	12	BXO		
73	9	2	12503	N03 W58	268	1000	2.5											
73	9	3	12503	N03 W72	269	1000	2.0											
73	9	4	12503	N03 W86	270	500	1.0											

MCMATH REGION 12500 CMP DATE 29.6

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	23	12500	N23 E83	262	300	1.5											
73	8	24	12500	N24 E68	262	300	2.5											
73	8	25	12500	N22 E53	264	500	1.5											
73	8	26	12500	N22 E39	264	500	1.5											
73	8	27	12500	N22 E24	264	400	1.5											
73	8	28	12500	N22 E14	265	500	2.0											
73	8	29	12500	N22 E00	265	300	2.0											
73	8	30	12500	N22 W13	264	300	1.5											
73	8	31	12500	N22 W26	264	300	1.5											
73	9	1	12500	N22 W41	264	400	1.5											
73	9	2	12500	N22 W54	264	300	1.5											
73	9	3	12500	N22 W67	264	300	1.5											
73	9	4	12500	N22 W80	264	300	1.0											

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MCMATH REGION 12501 CMP DATE 30.5 RETURN OF REGION 12471 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	23	12501	N15 E89	256	700	1.5	19241	N14 E85	258	AP		B	140	1	HSX	12	4
73	8	24	12501	N15 E75	255	1200	3.0	19241	N14 E68	260	(AP)	5	B	120	1	HSX	13	4
73	8	25	12501	N15 E61	256	1500	3.5	19241	N14 E57	260	(AP)	4	B	110	2	HSX	11	4
73	8	26	12501	N15 E50	253	1500	2.5	19241	N14 E50	248	AP		B	120	1	HSX	8	2
73	8	27	12501	N15 E37	251	1400	2.5	19241	N14 E29	259	(AP)	5	B	110	1	HRX	8	2
73	8	28	12501	N14 E25	254	1600	3.0	19241	N14 E18	257	(BP)	5	G	140	1	HSX	6	2
73	8								N15 E29				G	10	2	BXO		
73	8	29	12501	N14 E12	253	1400	3.0	19241	N14 E08	256	(BP)	5	B	90	3	CSO	6	2
73	8							19247	N17 E23	241	(B)	1						
73	8	30	12501	N14 W01	252	1600	2.5	19241	N14 W07	257	(BP)	5	B	120	7	CSO	6	2
73	8							19247	N14 E05	245	(A)	2						
73	8	31	12501	N14 W13	251	1800	2.5	19241	N14 W19	256	(BP)	5	G	100	1	HSX		
73	8							19247	N15 W06	243	(A)	1	G	0	2	AXX		
73	9	1	12501	N15 W28	251	1800	2.5	19247	N15 W19	241	(BF)	2	B	10	7	BXO		
73	9	1	12501					19241	N16 W38	260	(AP)	4	B	120	1	HSX		
73	9	2	12501	N15 W40	250	1800	2.5	19247	N15 W32	242	A							
73	9	2	12501					19241	N15 W44	254	(BP)	5	B	120	1	HSX		
73	9	3	12501	N15 W54	251	1500	2.0	19241	N15 W65	260	(AP)	4	B	110	1	HSX		
73	9	4	12501	N15 W66	250	1500	1.5	19241	N15 W80	261	(AP)	4	G	60	1	HSX		
73	9	5	12501	N15 W80	251	1400	2.0											
73	9	6	12501	N14 W88	248	300	1.0											

MCMATH REGION 12511 CMP DATE 30.5

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	31	12511	N04 W14	252	300	2.0	19250	N05 W16	253	(BP)	3	G	30	4	DRO		
73	8								N07 W07				G	0	1	AXX		
73	9	1	12511	N04 W29	252	800	2.5	19250	N05 W30	252	(B)	2	B	10	11	BXO		
73	9	2	12511	N05 W42	252	800	2.5	19250	N04 W43	253	(B)	3	B	10	9	BXO		
73	9	3	12511	N05 W56	253	900	3.5	19250	N06 W57	252	(BF)	3	B	10	7	BXO		
73	9	4	12511	N06 W68	252	1000	3.0	19250	N06 W72	253	BF)	2	G	30	6	BXO		
73	9	5	12511	N06 W83	254	1100	3.5											

MCMATH REGION 12509 CMP DATE 31.2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	29	12509	S13 E22	243	200	2.5	19248	S13 E20	244	(B)	2	B	10	2	BXO		
73	8	30	12509	S13 E07	244	200	2.5	19248	S13 E05	245	(B)	2	B	10	11	BXI		
73	8	31	12509	S13 W06	244	400	3.0	19248	S13 W07	244	(BF)	3	G	20	5	DRO		
73	9	1	12509	S12 W21	244	800	2.5	19248	S13 W23	245	(BF)	3	B	10	13	BXO		
73	9	2	12509	S12 W33	243	800	3.5	19248	S13 W36	246	(B)	4	B	40	19	DRO		
73	9	3	12509	S12 W47	244	900	3.0	19248	S23 W51	246	(BP)	4	B	60	12	CSO		
73	9	4	12509	S12 W59	243	1100	2.5	19248	S13 W66	247	(BP)	4	G	100	4	DAO		
73	9	5	12509	S12 W73	244	1000	2.5	19248	S12 W80	251	(AP)	3	B	40	2	HRX		
73	9	6	12509	S12 W83	243	400	1.0											

MCMATH REGION 12505 CMP DATE 31.7

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	28	12505	N02 E42	237	100	2.0											

Note: Region 12471 shows marked growth starting August 8.
Calcium spectroheliograms were obtained at the McMath-Hulbert Observatory on all days in August 1973.
No sunspot observations were made at Mt. Wilson Observatory on August 20, 1973.

DAILY CALCIUM PLAGE INDEX

AUGUST 1973

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
73	8	1	9.0	73	8	11	5.9	73	8	21	5.1
73	8	2	10.7	73	8	12	3.5	73	8	22	4.9
73	8	3	11.0	73	8	13	2.7	73	8	23	4.5
73	8	4	10.7	73	8	14	2.2	73	8	24	6.1
73	8	5	10.3	73	8	15	2.1	73	8	25	10.0
73	8	6	13.2	73	8	16	2.0	73	8	26	10.3
73	8	7	12.5	73	8	17	2.1	73	8	27	11.4
73	8	8	13.7	73	8	18	2.2	73	8	28	14.0
73	8	9	11.8	73	8	19	2.7	73	8	29	16.0
73	8	10	7.7	73	8	20	3.2	73	8	30	20.4
								73	8	31	22.7

* NO OBSERVATIONS

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9 – EXPLORER 37

AUGUST 1973

NAVAL RESEARCH LABORATORY 1 - 8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.15	0.18	0.25	0.23	0.30	0.23	0.30	0.17	0.17	0.17	0.13	0.32	0.17	0.16	0.16	0.15	0.11	0.21	0.20	0.22	0.17	0.12	0.12	0.12
2	0.15	0.13	0.16	0.14	0.39	0.14	0.17	0.14	0.15	0.14	0.16	0.13	0.14	0.16	0.15	0.11	0.13	0.15	0.29	0.19	0.14	0.14	0.14	0.14
3	0.15	0.14	0.14	0.16	0.13	0.14	0.27	0.16	0.19	0.16	0.13	0.16	0.21	0.16	0.14	0.29	0.17	0.21	0.16	0.16	0.14	0.14	0.68	0.52
4	0.19	0.14	0.13	0.12	0.13	0.14	0.20	0.18	0.14	0.14	0.16	0.13	0.17	0.15	0.15	0.12	0.14	0.16	0.13	0.20	0.18	0.17	0.17	0.16
5	0.13	0.14	0.14	0.13	0.15	0.14	0.15	0.14	0.14	0.13	0.14	0.13	0.13	0.13	0.18	0.12	0.33	0.13	0.22	0.21	0.17	0.17	0.13	1.44
6	0.43	0.80	0.96	0.17	0.82	0.25	3.74	0.61	1.85	1.15	0.78	0.47	0.45	0.56	2.05	0.34	0.56	0.37	0.25	0.39	0.23	0.28	0.51	0.73
7	0.84	0.39	0.24	0.48	0.35	0.20	0.13	0.23	0.18	0.19	0.19	0.35	0.26	0.91	0.73	0.41	0.22	0.30	0.42	0.24	0.36	0.24	0.14	0.20
8	0.21	0.18	0.17	0.14	0.16	0.15	0.12	0.15	0.14	0.17	0.22	0.16	0.18	0.17	0.18	0.15	0.22	0.26	0.17	0.16	0.21	0.20	0.14	0.66
9	0.26	0.13	0.11	0.16	0.21	0.14	0.18	0.11	0.17	0.14	0.14	0.27	0.15	0.16	0.37	3.28	0.25	0.19	0.26	0.17	0.21	0.29	0.22	0.25
10	0.91	0.21	0.19	0.25	0.22	0.16	0.15	0.16	0.18	0.16	0.20	0.20	0.16	0.26	0.21	0.21	0.14	0.27	0.23	0.15	0.16	0.17	0.21	0.23
11	0.19	0.25	0.18	0.18	0.27	0.29	0.21	0.23	0.18	0.17	0.22	0.18	0.26	0.49	0.30	0.14	0.13	0.13	0.13	0.24	0.13	0.11	0.10	0.13
12	0.11	0.11	0.13	0.15	0.10	0.14	0.12	0.12	0.16	0.12	0.13	0.12	0.17	0.11	0.19	0.11	0.28	0.13	0.30	0.15	0.13	0.31	0.15	0.12
13	0.18	0.14	0.14	0.12	0.13	0.13	0.16	0.14	0.14	0.12	0.11	0.10	0.13	0.15	0.11	0.14	0.21	0.32	0.22	0.16	0.22	0.18	0.18	0.17
14	0.15	0.16	0.13	0.13	0.13	0.13	0.10	0.12	0.15	0.13	0.12	0.15	0.11	0.12	0.20	0.15	0.16	0.23	0.11	0.31	0.18	0.11	0.11	0.13
15	0.12	0.12	0.12	0.15	0.13	0.15	0.13	0.15	0.15	0.12	0.11	0.11	0.13	0.13	0.16	0.13	0.13	0.20	0.20	0.17	0.13	0.14	0.13	0.17
16	0.12	0.13	0.12	0.11	0.13	0.15	0.14	0.11	0.13	0.11	0.14	0.12	0.13	0.13	0.16	0.13	0.15	0.17	0.18	0.13	0.24	0.15	0.12	0.14
17	0.12	0.13	0.13	0.11	0.12	0.11	0.12	0.15	0.13	0.15	0.11	0.15	0.13	0.16	0.12	0.15	0.12	0.24	0.20	0.21	0.18	0.13	0.14	0.12
18	0.14	0.13	0.15	0.14	0.12	0.12	0.16	0.13	0.15	0.12	0.12	0.13	0.13	0.10	0.11	0.15	0.14	0.12	0.23	0.11	0.11	0.16	0.13	0.11
19	0.12	0.11	0.10	0.13	0.10	0.11	0.14	0.13	0.13	0.14	0.12	0.14	0.11	0.17	0.17	0.09	0.26	0.17	0.20	0.13	0.31	0.11	0.11	0.13
20	0.11	0.12	0.13	0.11	0.18	0.11	0.15	0.11	0.11	0.14	0.13	0.11	0.14	0.14	0.13	0.24	0.15	0.17	0.12	0.23	0.15	0.17	0.11	0.15
21	0.15	0.13	0.12	0.21	0.28	0.15	0.12	0.12	0.13	0.15	0.13	0.20	0.18	0.14	0.56	0.46	0.27	0.21	0.18	0.20	0.12	0.18	0.12	0.12
22	0.14	0.15	0.14	0.17	0.13	0.15	0.14	0.17	0.14	0.14	0.12	0.15	0.15	0.25	0.17	0.13	0.18	0.14	0.15	0.13	0.19	0.13	0.12	0.11
23	0.13	0.12	0.12	0.12	0.22	0.13	0.13	0.15	0.13	0.13	0.12	0.14	0.17	0.20	0.12	0.18	0.14	0.23	0.12	0.16	0.16	0.14	0.16	0.13
24	0.11	0.20	0.12	0.09	0.17	0.12	0.23	0.15	0.17	0.15	0.14	0.18	0.15	0.17	0.24	0.16	0.18	0.16	0.15	0.12	0.14	0.19	0.22	0.14
25	0.14	0.14	0.17	0.15	0.18	0.15	0.16	0.18	0.15	0.20	0.18	0.21	0.18	0.44	0.20	0.13	0.15	0.35	0.35	0.14	0.15	0.13	0.13	0.15
26	0.15	0.14	0.16	0.15	0.16	0.13	0.14	0.15	0.18	0.15	0.20	0.15	0.19	0.14	0.23	0.19	0.16	0.18	0.19	0.16	0.23	0.14	0.14	0.16
27	0.14	0.16	0.15	0.19	0.19	0.29	0.17	0.19	0.21	0.23	0.19	0.27	0.26	0.25	0.21	0.17	0.32	0.68	0.29	0.33	0.19	0.20	0.20	0.22
28	0.21	0.29	0.23	0.29	0.23	0.27	0.25	0.20	0.17	0.23	0.25	0.19	0.20	0.20	0.19	0.18	0.17	0.16	0.22	0.15	0.18	0.20	0.18	0.19
29	0.20	0.18	0.20	0.21	0.25	0.25	0.19	0.20	0.19	0.25	0.22	0.19	0.18	0.19	0.17	0.23	0.20	0.36	0.32	0.20	0.18	0.59	0.37	0.23
30	0.21	0.23	0.23	0.16	0.20	0.19	0.16	0.16	0.18	0.20	0.16	0.23	0.23	0.20	0.24	0.23	0.16	0.17	0.16	0.22	0.17	0.18	0.22	0.23
31	0.27	0.20	0.17	0.20	0.22	0.19	0.26	0.34	0.22	0.20	0.21	0.21	0.33	0.29	0.55	0.34	0.37	0.43	0.31	0.64	0.29	0.30	0.45	0.30

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SOLRAD 9 - EXPLORER 37

AUGUST 1973

NAVAL RESEARCH LABORATORY 8 - 20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.27	0.30	0.39	0.38	0.42	0.39	0.45	0.32	0.31	0.30	0.29	0.38	0.29	0.27	0.26	0.25	0.24	0.25	0.28	0.27	0.24	0.22	0.22	0.22
2	0.22	0.22	0.23	0.21	0.40	0.22	0.22	0.22	0.21	0.22	0.22	0.22	0.21	0.22	0.22	0.20	0.21	0.19	0.26	0.28	0.21	0.21	0.21	0.20
3	0.22	0.20	0.19	0.20	0.22	0.21	0.29	0.21	0.20	0.24	0.21	0.21	0.23	0.22	0.21	0.21	0.24	0.22	0.24	0.23	0.23	0.23	0.59	0.58
4	0.30	0.21	0.19	0.19	0.18	0.20	0.28	0.25	0.22	0.21	0.21	0.19	0.20	0.21	0.18	0.20	0.20	0.19	0.22	0.19	0.21	0.25	0.25	0.20
5	0.20	0.19	0.19	0.20	0.21	0.19	0.19	0.19	0.18	0.20	0.19	0.19	0.18	0.17	0.19	0.21	0.20	0.20	0.21	0.22	0.24	0.25	0.23	0.78
6	0.54	0.54	0.75	0.28	0.81	0.47	1.80	0.69	0.73	1.14	0.76	0.55	0.54	0.58	1.33	0.44	0.49	0.46	0.39	0.45	0.40	0.43	0.60	0.66
7	0.69	0.48	0.38	0.52	0.45	0.84	0.31	0.31	0.29	0.28	0.33	0.46	0.42	0.83	0.70	0.61	0.42	0.45	0.49	0.53	0.49	0.42	0.33	0.32
8	0.37	0.34	0.31	0.28	0.29	0.26	0.25	0.29	0.25	0.26	0.32	0.29	0.28	0.26	0.24	0.27	0.23	0.39	0.21	0.38	0.23	0.22	0.22	0.49
9	0.31	0.25	0.21	0.23	0.23	0.22	0.22	0.23	0.24	0.25	0.23	0.27	0.28	0.27	0.38	1.50	0.38	0.32	0.29	0.26	0.27	0.29	0.36	0.37
10	0.74	0.26	0.27	0.34	0.30	0.25	0.25	0.26	0.27	0.26	0.29	0.30	0.30	0.38	0.33	0.32	0.33	0.55	0.26	0.26	0.24	0.28	0.34	0.32
11	0.33	0.34	0.27	0.28	0.37	0.44	0.33	0.30	0.27	0.27	0.31	0.27	0.33	0.55	0.43	0.24	0.16	0.15	0.14	0.15	0.13	0.14	0.13	0.17
12	0.15	0.12	0.15	0.13	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.11	0.11	0.10	0.11	0.11
13	0.12	0.12	0.11	0.13	0.10	0.11	0.11	0.11	0.10	0.09	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.09	0.11	0.18	0.21	0.24	0.22	0.21
14	0.18	0.16	0.14	0.14	0.14	0.12	0.11	0.11	0.10	0.10	0.10	0.09	0.10	0.09	0.08	0.08	0.09	0.08	0.08	0.15	0.08	0.08	0.08	0.09
15	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.06	0.07	0.09	0.07	0.07	0.07	0.06	0.06	0.06	0.06
16	0.07	0.08	0.09	0.07	0.07	0.09	0.07	0.07	0.08	0.09	0.09	0.08	0.08	0.08	0.09	0.08	0.08	0.23	0.08	0.08	0.08	0.08	0.07	0.08
17	0.08	0.09	0.09	0.09	0.09	0.08	0.09	0.09	0.08	0.08	0.09	0.09	0.09	0.13	0.12	0.08	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08
18	0.09	0.08	0.08	0.08	0.10	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.08	0.08	0.08	0.09	0.24	0.08	0.08	0.08	0.08	0.10	0.07	0.08
19	0.08	0.08	0.07	0.08	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.08	0.07	0.09	0.08	0.09	0.07	0.07	0.08	0.08	0.08	0.07	0.08	0.09
20	0.09	0.08	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.12	0.10	0.10	0.11	0.10	0.10	0.10
21	0.09	0.10	0.10	0.11	0.10	0.09	0.10	0.10	0.10	0.10	0.11	0.10	0.11	0.13	0.42	0.49	0.38	0.24	0.18	0.18	0.15	0.15	0.15	0.16
22	0.16	0.17	0.16	0.15	0.14	0.13	0.14	0.14	0.13	0.14	0.14	0.15	0.14	0.15	0.13	0.13	0.13	0.14	0.15	0.13	0.13	0.13	0.13	0.13
23	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.14	0.14	0.13	0.15	0.15	0.16	0.18	0.17	0.16	0.16	0.17	0.16	0.15	0.16	0.17	0.17	0.15
24	0.15	0.17	0.16	0.15	0.16	0.17	0.16	0.16	0.16	0.17	0.18	0.15	0.18	0.16	0.17	0.19	0.20	0.18	0.18	0.19	0.21	0.20	0.26	0.20
25	0.21	0.23	0.20	0.23	0.22	0.21	0.25	0.28	0.27	0.25	0.24	0.26	0.26	0.43	0.33	0.23	0.22	0.35	0.35	0.24	0.22	0.22	0.24	0.23
26	0.23	0.22	0.24	0.24	0.21	0.22	0.22	0.23	0.25	0.21	0.22	0.22	0.21	0.25	0.29	0.30	0.26	0.30	0.25	0.26	0.28	0.23	0.23	0.27
27	0.28	0.28	0.30	0.30	0.32	0.45	0.33	0.35	0.36	0.39	0.36	0.35	0.40	0.38	0.39	0.36	0.38	0.69	0.49	0.47	0.37	0.34	0.36	0.35
28	0.36	0.48	0.43	0.49	0.44	0.46	0.44	0.39	0.39	0.37	0.34	0.36	0.31	0.33	0.35	0.33	0.34	0.36	0.31	0.32	0.32	0.33	0.34	0.33
29	0.37	0.38	0.40	0.41	0.46	0.46	0.39	0.39	0.38	0.40	0.38	0.39	0.36	0.34	0.34	0.35	0.38	0.40	0.49	0.41	0.37	0.73	0.56	0.45
30	0.37	0.41	0.41	0.36	0.40	0.33	0.32	0.33	0.33	0.36	0.34	0.38	0.38	0.38	0.36	0.41	0.37	0.37	0.38	0.41	0.41	0.35	0.38	0.46
31	0.42	0.38	0.36	0.38	0.43	0.42	0.42	0.48	0.43	0.41	0.41	0.43	0.52	0.54	0.73	0.58	0.63	0.69	0.55	0.69	0.55	0.54	0.68	0.52

SOLAR X-RAYS BY SATELLITE
EXPLORER 37
AUGUST 1973

NAVAL RESEARCH LABORATORY

OUTSTANDING EVENTS

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
6	0625	75.00	0627	180.00	0627	53.00	0628	0645	
6	1415E	13.00D	1415E	70.00	1416	28.00	1417	1422	
9	1551	87.00	1553	220.00	1553	53.00	1553	1556	

Note: Data from SOLRAD 10 are not available after 2200 UT on June 11 due to a malfunction of the data storage system. Hourly flux values and X-ray flares will be reported from SOLRAD 9 until SOLRAD 10 resumes normal operation.

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
05	2336	0020	2341	1-	1				1				2336	12474
06	0146	0233	0200	1-	1				1				0146	12474
06	0404	0456	0415	1-	1				1				0400E	12474
06	0625	0645	0630	1+	5	3		1	3				0625	12474
06	0842	0955	0850	2	5	3	1	3	3		1		0843E	12474
06	0945	1130	0950	1-	1				1				0945E	12474
06	1405	1515	1418	1	5	2			1		6	1	1405	12474
06	1720	1800	1732	1-	5	3			1		8	1	1719E	12474
07	0037	0135	0043	1-	1				1				0034	12474
07	1845	1856	1846	1-	1							1	1845	12474
08	2338	0030	2342	1-	1				1				2340E	12474
09	1152	1230	1157	1-	1				1		1		1152	12474
09	1415	1515	1422	1	1				1		1		1415	12474
09	1551	1745	1556	1+	5	5	2	7	2	1	9	1	1550	12474
09	2140	2209	2145	1-	3				1			1	2141E	12474
10	0012	0105	0020	1-	1				1				0014	12474
31	1929	1940U	1931	1-	1							1	1928	12510

STATIONS REPORTING FOR AUGUST 1973

AAVSO (A1, A17, A19, A32, A39,,SEA, (A18 A19, A21, A28, A30, A31, A33, A36, A37, A38)(SES)(A31)(SWF)
BOULDER (BO) (SEA)
DARMSTADT (DA) (SWF)
HAWAII (HA) (SFD)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
KUHLUNGSBORN (KU) (SEA, SPA)
MANILA (MA) (SCNA, SEA, SPA)
MCMATH (MC) (SWF, SCNA)
NEUSTRELITZ (NU) (SWF, SCNA)
PANSKA VES (PU) (SWF, SEA, SES)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SACRAMENTO PEAK (SP) (SFD)
SAO PAULO (UM) (SPA, SES)
TABLE MOUNTAIN (TM) (SWF, SPA, LF-SPA)
TORINO (TN) (SPA)
TRINIDAD (TR) (SWF, SPA)
WHITE SANDS (WS) (SWF)

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01-14	0000-2400 A28
01	0755-1000 UM (16 kHz), 1500-2100 UM (13 kHz), 1349-1600 TR, 1735-1815 TR
02	0000-1243 UM (13 kHz), 1412-1820 TR
03	0800-0900 UM (16 kHz), 1340-1723 TR, 1756-1810 TM
06	0840-0944 TR
07	0000-2130 TM, 0740-1100 UM (17 kHz), 0850-1330 UM (16 kHz)
08	1455-1502 WS, 1547-1548 WS, 1555-1600 WS
09	0000-2400 A38, 1529-1600 TR
10	1520-1557 TR
11	0800-1120 UM (16 kHz), 1620-1627 TR
12	1358-1415 TR, 1528-1911 TR
13	1458-1508 MC, 1612-1748 TR
14	0221-0259 A31, 1015-1340 UM (16 kHz), 1334-1617 TR
17	1400-1811 UM (17 kHz)
20	0521-1337 WS
21	1010-1340 UM (16 kHz), 1307-2108 UM (13 kHz)
26	0340-1328 TM
28-31	0000-2400 A33
30	1807-1810 MC

SID's BY McMATH REGION

AUGUST 1973

		DAY 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
REGION	74	1 7 2 1 4 1
	10	1

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1973

AUG. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
01	0000	0141	HARV													
	0000	0230	BOUL													
	0000	0738	CULG							0029						IIIB,W
			CULG							0526.5	0527	1				IIIG
			CULG				0537		1	0537		1				IIIB
	0422	1840	MEIS							1300.8	1300.9	1				IIIB
	1245	2400	HARV							1327	1329	2	1327	1328	1	IIIGG
	1200	2400	BOUL							1327.1	1328.1	2	1327.1	1328.1	2	III
			MEIS							1327.1	1329.3	2				IIIGG
	0935	2359	SGMR										1327.1	1328.1	3	III
			SGMR										1911.7	1913.2	1	IIIG
			BOUL							1914.7	1917.9	1	1914.7	1917.9	1	IIIG
	2038	2400	CULG							2051	2126	1				IS
			CULG							2106		1				IIIB
			CULG							2119	2123.5	1				IIIG
			CULG							2144	2144.5	1				IIIG
02	0000	0230	BOUL													
	0000	0140	HARV													
	0000	0738	CULG							0020	0658					IIIN,W
			CULG							0056	0056.5	1				IIIG
			CULG							0106.5		1				IIIB
			CULG							0132.5	0133	1				IIIG
			CULG							0224.5	0226	1				IIIG,V
			CULG							0227	0228	1				IIIG
			CULG							0236	0236.5	1				IIIG,U
			CULG							0237	0239	1				IIIG,U
			CULG							0247.5	0248	1				IIIG
			CULG				0401	0402	1							IIIG
			CULG				0403	0406	1							IIIGG
			CULG				0407	0407.5	1	0407	0409	1				IIIG,V
			CULG							0410	0722	1				IS
			CULG				0413	0413.5	1	0413	0414	2				IIIG
			CULG				0447	0448	1	0447.5	0449.5	2				IIIG,V
	0425	0702	MEIS							0447.6	0448.5	1				IIIG
			CULG							0705.5		1				IIIB
	0710	1841	MEIS													
	0941	2358	SGMR													
	1200	2400	BOUL													
	1246	2400	HARV													
	2038	2400	CULG							2058.5	2210					IS,W
			CULG							2146.5		1				IIIB
03	0000	0738	CULG													
	0000	0139	HARV													
	0000	0230	BOUL													
	0427	1240	MEIS													
	0942	2357	SGMR													
	1200	2400	BOUL													
	1243	1843	MEIS													
	1245	2400	HARV													
	2038	2400	CULG							2126.5	2127.5					IIIG,W
			CULG							2355	2355.5					IIIG,W
04	0000	0138	HARV													
	0000	0230	BOUL													
	0000	0738	CULG							0053						IIIB,W
			CULG							0319						IIIB,W
			CULG							0527.5	0530	1				IIIG,U
			MEIS							0527.8	0527.9	1				IIIB
	0427	1836	MEIS							0531.9	0532.0	2				IIIB
			CULG				0532	0532.5	1	0532	0532.5	1				IIIG
			CULG							0635	0635.5	1				IIIG
			CULG							0637						IIIB,W
			CULG							0639.5	0640					IIIG,W
			CULG				0653		1	0653		1				IIIB
	0943	2355	SGMR										1219.9	1220.4	1	III
			SGMR										1227.1	1227.5	2	III
	1200	2400	BOUL							1227.1	1227.4	1	1227.1	1227.4	1	III
			MEIS							1227.2	1227.4	1				IIIB
	1246	2400	HARV													
			BOUL										1344.5	1344.7	1	III
			BOUL										1347.1	1347.6	1	III
			SGMR										1347.2	1347.6	1	III
			BOUL										1449.3	1450.0	1	IIIG
			BOUL										1453.0	1453.9	1	IIIG
			BOUL										1635.6	1636.2	1	III
			BOUL										1817.9	1818.2	1	III
	2039	2400	CULG							2140.5		1				IIIB
			CULG							2255.5		1				IIIB
			CULG							2318.5		1				IIIG,U
			CULG							2352.5	2353.5	1				IIIG
05	0000	0230	BOUL													
	0000	0137	HARV													
	0000	0738	CULG							0016						IIIB,W
			CULG				0056	0056.5	1	0056	0056.5	1				IIIG
			CULG							0200		1				IIIB
			CULG				0349.5	0350	1	0349.5	0350.5	1				IIIG
			CULG							0351	0352	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1973

AUG. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
05	0441	0503	WEIS													
	0944	2354	SGMR													
	1003	1037	WEIS													
	1200	2400	BOUL													
	1246	2400	HARV													
	2038	2400	CULG				2105	2105.5	1	2105	2105.5	1				IIIG
			CULG							2111.5		1				IIIB
06	0000	0137	HARV													
	0000	0230	BOUL													
	0000	0737	CULG							0116.5		1				IIIB
			CULG							0139	0140	1				IIIG
			CULG				0325.5	0328	1	0325.5	0328	2				IIIGG
			CULG							0458						IIIB,W
			CULG				0557	0558	1	0557	0558	2				IIIG
	0440	1509	WEIS							0557.3	0557.6	2				IIIG
			CULG				0559.5	0601	1	0600	0601	1				IIIGG
			WEIS							0600.4	0600.5	2				IIIB
			CULG				0602	0602.5	1	0602	0603	2				IIIG 3
			WEIS							0602.4	0602.5	3				IIIB
			WEIS							0730.4	0730.5	2				IIIG
			WEIS							0732.3	0732.4	2				IIIB
	0945	2353	SGMR													
	1245	2400	HARV													
	1200	2400	BOUL							1302.6	1303.8	1	1302.6	1303.8	1	IIIG
	1625	1839	WEIS													
	2038	2400	CULG							2156	2400					IN
07	0000	0737	CULG							0000	0144.5	1				IS
	0000	0230	BOUL													
	0000	0137	HARV													
	0441	1834	WEIS													
	0946	2352	SGMR													
	1200	2400	BOUL													
	1246	2400	HARV				1840	1841	2							IIIG
			HARV				1845	1848	3	1845	1846	2				IIIGG
	2038	2400	CULG													
08	0000	0136	HARV													
	0000	0200	BOUL													
	0000	0737	CULG							0049	0049.5	1				IIIG
			CULG							0053.5		1				IIIB
			CULG				0118	0130.5	1	0109.5	0435	1				IS
			CULG							0440	0442.5	2				IIIG,V,U
	0448	0915	WEIS													
	0932	1822	WEIS													
	0947	2350	SGMR													
	1200	2400	BOUL													
	1245	2400	HARV				1912	1914	3							IIIGG
	2038	2400	CULG							2135	2135.5	1				IIIG
			CULG							2240.5	2241	1				IIIG
			CULG							2308	2309	1				IIIG
			CULG				2335.5	2336	1	2335	2336	1				IIIG,U
09	0000	0135	HARV													
	0000	0200	BOUL													
	0000	0735	CULG							0046		1				IIIB
			CULG							0054.5	0055	1				IIIG
			CULG							0109						IIIB,W
			CULG							0123	0124	1				IIIG
			CULG							0139						IIIB,W
			CULG				0222.5	0223	1	0221.5	0225.5	2				IIIGG
			CULG							0304	0305.5	1				IIIG
			CULG							0308	0308.5					IIIG,W
			CULG							0313.5						IIIB,W
			CULG							0356.5	0357	1				IIIG
			CULG							0359	0400					IIIG,W
			CULG							0406						IIIB,W
			CULG							0410	0410.5	1				IIIG
			CULG				0413	0413.5	1	0412.5	0413.5	1				IIIG
	0436	1245	WEIS													
			CULG				0541.5	0652								IN
			CULG							0611	0611.5	1				IIIG
	1246	2400	HARV				1415	1416	1							IIIGG
	1426	1501	WEIS													
			HARV				1550	1553	3	1550	1553	3				IIIGG
	1555	1823	WEIS													
	1200	2400	BOUL										1708.8	1708.3	1	III
	0948	2349	SGMR										2002.3	2003.1	1	III
	2037	2400	CULG							2055.5	2303.5					IIIN,W
			CULG							2055.5	2257	1				IS
			HARV				2122	2123	1							IIIG
10	0000	0200	BOUL													
	0000	0134	HARV				0014	0015	3							IIIGG
	0000	0738	CULG							0120						IIIB,W
			CULG							0330	0624	1				IS
			CULG							0340						IIIB,W
			CULG				0423	0424.5	1	0423	0424.5	1				IIIG
	0437	1825	WEIS													

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1973

AUG. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
10			CULG							0654.5						IIIB,W
			CULG							0659.5		1				IIIB
			CULG							0720.5						IIIB,W
	1246	2400	HARV													
	1200	2400	BOUL										1507.5	1508.0	2	III
	0949	2348	SGMR										1507.7	1508.1	2	III
	2037	2400	CULG							2046	2400	1				IS
11	0000	0737	CULG							0000	0122	1				IS
	0000	0200	BOUL													
	0000	0132	HARV													
	0438	0751	WEIS													
	0805	1822	WEIS													
	0950	2346	SGMR													
	1200	2400	BOUL													
	1245	2400	HARV													
	2249	2400	CULG													
12	0000	0130	HARV													
	0000	0737	CULG							0039		1				IIIB
	0000	0200	BOUL										0039.2	0039.4	1	III
			CULG				0131.5	0132	1	0131.5	0133	1				IIIG
			BOUL							0131.6	0131.8	1	0131.6	0131.8	1	III
			CULG				0134	0134.5	1	0134	0134.5	1				IIIG
			BOUL							0134.0	0134.9	1	0134.0	0134.9	1	III
			CULG							0200.5	0201	1				IIIG
			CULG							0207	0645					IIIN,W
			CULG							0322.5	0324	1				IIIG,V
			CULG							0338	0339	1				IIIG,V
			CULG							0345.5	0346.5	1				IIIG
			CULG				0523		1	0523	0524	1				IIIG,V
			CULG				0528		1	0528		1				IIIB
			CULG							0544	0545	1				IIIG
			CULG							0546	0547	1				IIIG
			CULG				0556	0558								IIIG,W
			CULG							0556.5	0559	1				IIIG,V
			CULG							0606.5	0608	1				IIIG,V
			CULG							0628	0629	1				IIIG
			CULG							0643	0644	1				IIIG,V
	0443	1331	WEIS							0758.6	0759.1	2				IIIB
			WEIS							0817.7	0817.8	1				IIIB
			WEIS							0929.0	0929.1	1				IIIB
	0951	2345	SGMR										1158.9	1209.1	1	IIIG
	1246	2400	HARV													
	1200	2400	BOUL							1516.5	1516.9	1	1516.5	1516.9	1	III
			SGMR										1516.8	1517.1	2	III
	2037	2400	CULG							2045	2314	1				IS
13	0000	0200	BOUL													
	0000	0129	HARV													
	0000	0737	CULG				0614.5	0616	1	0613.5	0616.5	1				IIIG,V
			CULG							0616	0631	1				II HB
			CULG				0620	0621	1	0618	0628	1				IIIGG,V
	0715	1825	WEIS													
	0952	2343	SGMR													
	1200	2400	BOUL													
	1245	2400	HARV													
	2037	2400	CULG													
14	0000	0128	HARV													
	0000	0200	BOUL													
	0000	0737	CULG							0111						IIIB,W
			CULG							0112						IIIB,W
			CULG							0208	0209					IIIG,V,W
	0446	1355	WEIS													
	1246	2400	HARV													
	1428	1443	WEIS													
	1558	1826	WEIS													
	1200	2400	BOUL										1951.8	1952.8	1	III
	0953	2342	SGMR										1952.8	1952.8	2	III
			BOUL										1953.7	1954.0	1	III
	2037	2400	CULG													
15	0000	0737	CULG													
	0000	0200	BOUL													
	0000	0127	HARV													
	0447	1827	WEIS													
	1200	2400	BOUL													
	1246	2400	HARV													
	0954	2341	SGMR										1845.0	1846.0	1	III
	2037	2400	CULG													
16	0000	0737	CULG													
	0000	0125	HARV													
	0000	0200	BOUL													
	0449	0719	WEIS													
	0720	1825	WEIS													
	0955	2339	SGMR													
	1200	2400	BOUL													
	1245	2400	HARV													

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1973

AUG. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
16	2036	2400	CULG													
17	0000	0736	CULG													
	0000	0123	HARV													
	0000	0200	BOUL													
	0450	0457	WEIS													
	0459	1130	WEIS													
	0956	2338	SGMR													
	1200	2400	BOUL													
	1246	2400	HARV													
	1429	1500	WEIS													
	1736	1740	WEIS													
	1803	1811	WEIS													
	2035	2400	CULG													
18	0000	0122	HARV													
	0000	0200	BOUL													
	0000	0736	CULG							0658		1				III0
	0700	0909	WEIS													
			CULG						1	0732.5						III0,W
	0929	1606	WEIS													
	0957	2336	SGMR													
	1200	2400	BOUL													
	1245	2400	HARV													
	2036	2400	CULG													
19	0000	0728	CULG													
	0000	0121	HARV													
	0000	0200	BOUL													
	0452	0608	WEIS													
	0358	2335	SGMR													
	1200	2400	BOUL													
	1238	1605	WEIS													
	1246	2400	HARV													
	2035	2400	CULG													
20	0000	0735	CULG													
	0000	0120	HARV													
	0000	0200	BOUL													
	0959	2333	SGMR													
	1200	2400	BOUL													
	1246	2400	HARV													
	2035	2400	CULG													
21	0000	0735	CULG													
	0000	0118	HARV													
	0000	0200	BOUL													
	1300	2400	HARV													
	1300	2332	SGMR										1440.0	1658.0	2	CONT
	1200	2400	BOUL							1441.5	1734.0	3	1441.5	1734.0	3	IV
			BOUL							1825.0	1919	1	1825.0	1919	1	IV
	2035	2400	CULG													
22	0000	0200	BOUL													
	0000	0116	HARV													
	0000	0735	CULG							0443		1				III0
	1001	2330	SGMR													
	1200	2400	BOUL													
	1301	2400	HARV													
	2035	2400	CULG													
23	0000	0735	CULG													
	0000	0115	HARV													
	0000	0200	BOUL													
	1003	2328	SGMR													
	1200	2400	BOUL													
	1300	2400	HARV													
	2035	2135	CULG													
	2136	2400	CULG													
24	0000	0735	CULG													
	0000	0114	HARV													
	0000	0200	BOUL													
	1004	2327	SGMR													
	1230	2400	BOUL													
	1301	2400	HARV													
	2035	2400	CULG							2214						III0,W
25	0000	0113	HARV													
	0000	0200	BOUL													
	0000	0734	CULG							0155						III0,W
			CULG							0327.5						III0,W
			CULG							0643.5						III0,W
	1005	2327	SGMR													
	1230	2400	BOUL													
	1300	2400	HARV													
	2034	2400	CULG													
26	0000	0734	CULG													
	0000	0112	HARV													

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1973

AUG. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
26	0000	0200	BOUL													
	1006	2324	SGMR													
	1230	2400	BOUL													
	1300	1520	HARV													
	1620	1630	HARV													
	1633	2400	HARV													
	2034	2400	CULG							2254						IIIB,W
27	0000	0110	HARV													
	0000	0200	BOUL													
	0000	0734	CULG				0247	0250								FAST DR,W
			CULG							0324	0734					IS,W
	1007	2322	SGMR													
	1230	2400	BOUL													
	1301	2400	HARV													
	2034	2400	CULG							2052.5		1				IIIB
			CULG							2129.5						IIIB,W
			CULG							2351		1				IIIB
28	0000	0109	HARV													
	0000	0200	BOUL													
	0000	0734	CULG							0233.5	0234.5	1				IIIG
			CULG							0445	0545	2				IS
			CULG							0450	0734					IIIN,W
	0506	0908	WEIS													
			CULG							0545	0734	1				IS
	1008	2320	SGMR													
	1113	1746	WEIS													
	1230	2400	BOUL													
	1300	2400	HARV													
	2033	2400	CULG				2041	2042								FAST DR,W
			CULG							2105	2106.5					FAST DR,W
			CULG							2234		1				IIIB
29	0000	0108	HARV													
	0000	0200	BOUL													
	0000	0733	CULG							0022	0145					IS,W
			CULG							0214	0724					IIIN,W
			CULG							0252	0253	1				IIIG
			CULG							0317	0318	1				IIIG,U
	0509	1015	WEIS													
			WEIS							1309.5	1310.0	2				IIIB
	1009	2319	SGMR										1309.7	1310.1	2	III
	1230	2400	BOUL										1310.0	1310.8	1	III
			SGMR										1357.1	1357.3	1	III
			BOUL										1357.8	1358.2	1	III
			SGMR										1445.8	1455.0	1	IIIG
			BOUL							1446.4	1447.0	2	1446.4	1447.0	2	III
			WEIS							1454.6	1455.3	1				IIIG
			BOUL							1455.0	1456.5	2	1455.0	1456.5	2	III
			BOUL										1457.6	1457.7	1	III
			SGMR										1539.9	1540.2	1	III
			BOUL							1540.7	1541.7	2	1540.7	1541.7	2	III
	1301	2400	HARV							1630	1631	2	1630	1631	2	IIIGG
			WEIS							1630.3	1634.6	3				IIIG
			SGMR										1630.6	1630.8	1	III
			BOUL							1631.1	1631.7	2	1631.1	1631.9	2	III
			HARV							1657	1702	2	1657	1702	3	IIIGG,V,U
			SGMR										1657.4	1702.0	3	IIIG
	1018	1746	WEIS							1657.6	1758.6	1				IIIG
			BOUL							1658.1	1700.2	2	1658.1	1700.2	2	III
			BOUL										1701.6	1702.2	2	III
			SGMR										1754.4	1754.6	1	III
			HARV							1824	1825	3	1824	1825	3	IIIB
			BOUL										1825.0	1825.2	1	III
			BOUL										1827.8	1828.1	1	III
			HARV				1832	1837	3							IIIGG
			SGMR										1842.2	1844.2	2	IIIG
			BOUL							1842.9	1845.0	2	1842.9	1845.0	2	IIIG
			HARV				1843	1844	1	1842	1844	3	1842	1844	3	IIIGG,V
			BOUL										1846.5	1846.6	1	III
			BOUL										2018.1	2018.3	1	III
			BOUL										2028.6	2029.3	1	IIIG
	2033	2400	CULG							2033	2400	1				IIIN
			CULG							2159	2200	1				IIIG
			BOUL										2159.1	2200.1	1	III
			CULG				2217.5	2400								IS,W
30			CULG							0000	0738					IIIN,W
	0000	0738	CULG				0000	0738		0000	0738					IS,W
	0000	0200	BOUL													
	0000	0107	HARV													
	0510	1744	WEIS													
			CULG							0708		1				IIIB
			CULG							0716.5		1				IIIB
	1018	2317	SGMR													
	1230	2400	BOUL													
	1300	2400	HARV							1306	1952	1				IN
			CULG							2033	2400					IIIN,W
	2033	2400	CULG				2033	2400		2033	2400					IS,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1973

AUG. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
31			CULG				0000	0732								IN,W
	0000	0732	CULG							0000	0732					IIIN,W
	0000	0105	HARV													
	0000	0130	BOUL													
			CULG							0600.5	0601.5	1				IIIG,V
			CULG							0640		1				IIIB
	0657	1742	WEIS							0918.1	0918.5	1				IIIG
			WEIS							1127.0	1622.0	2				IN
	1300	2400	HARV							1300	1340	1				IN
	1200	2400	BOUL										1330	1657.0	1	CONT
			HARV							1340	1500	1				I
			HARV							1500	1622	1				IN
			HARV							1615	1747	1	1615	1722	1	IIIN
			HARV				1930	1932	2	1930	1931	1				IIIGG
			CULG				2032	2400	1	2032	2400	1				IS
	2032	2400	CULG							2032	2400	1				IIIS
			BOUL							2036.0	2400.0	1	2036.0	2400.0	1	CONT
	1011	2316	SGMR										2129.0	2316.0	1	CONT
			CULG							2220	2223	2				IIIGG,V
			HARV							2220	2223	2	2220	2223	2	IIIGG
			BOUL							2221.4	2224.2	2	2221.4	2224.2	2	IIIG
			HARV							2234	2358	1				IN

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

Note: Beginning in May the frequency coverage at the Harvard Radio Astronomy Station, Fort Davis, Texas, has been extended from 10-2000 MHz to 10-4000 MHz.

SELECTED SOLAR EVENTS

AUGUST 1973

Culgoora

UT Date 197.3 AUGUST	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polarization	Intensity (1-3)		
				Central Dist. ($R_\odot$)	Position Angle (Deg.)				
2	0447	0451	80 160	1.3 1.3	130 130	0	2	IIIG,V	
5	0349	0352	80 160	1.0 1.0	120 150	0	2	IIIG	
8	0440	0442	80 160	1.1 0.8	270 250	0	1	IIIG,V,U	Complex source structure
9	0222	0226	80 160	1.0 1.0	320 270	0	1	IIIGG	*

Days without Heliograph observations: .....

* Other type III observed at same position during day

COSMIC RAY INDICES

(Neutron Monitors)

AUGUST 1973

Aug. 1973	THULE DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CALGARY DAILY AVERAGE COUNTS PER HOUR	SULPHUR MT. DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	4406.4	6722.9	11422.9	8490.4	not available at time of publication	6170.0
2	4442.2	6780.6	11506.8	8578.4		6209.5
3	4450.9	6779.7	11516.4	8586.0		6193.7
4	4449.3	6799.5	11524.5	8611.0		6214.9
5	4470.0	6838.8	11556.3	8671.6		6242.3
6	4514.5	6880.8	11642.6	8765.0		6275.1
7	4519.1	6893.7	11630.8	8763.5		6287.3
8	4509.9	6889.3	11630.6	8759.8		6278.2
9	4509.6	6882.3	11685.3	8755.9		6278.4
10	4535.4	6913.1	11757.1	8798.2		6280.6
11	4561.0	6941.6	11795.2	8826.8		6293.8
12	4573.1	6967.0	11842.0	8862.8		6308.4
13	4562.8	6947.4	11828.4	8855.7		6297.6
14	4565.4	6956.5	11847.7	8868.2		6307.5
15	4566.3	6963.0	11836.1	8866.6		6316.3
16	4568.3	6990.2	11854.2	8905.3		6334.2
17	4572.6	6979.5	11865.9	8892.8		6337.3
18	4597.5	7012.0	11940.8	8937.8		6363.7
19	4607.5	7049.0	12015.4	8990.5		6392.9
20	4633.2	7076.9	12042.2	9017.0		6427.5
21	4636.8	7075.8	12049.1	9028.0		6434.7
22	4629.9	7086.5	12051.5	9034.3		6428.4
23	4627.2	7069.1	12034.6	9020.4		6431.3
24	4605.3	7056.8	11981.0	9018.6		6444.2
25	4625.8	7056.9	11920.8	8975.2		6436.7
26	4621.1	7034.6	11983.6	8981.2		6435.5
27	4611.4	7024.4	11992.4	8971.1		6427.8
28	4607.3	7012.3	11974.1	8936.6		6402.6
29	4609.9	7010.9(9)	12021.5	8982.3		6393.0
30	4623.4	7064.9(6)	12009.3	9007.7(14)		6412.1
31	4627.9	7060.5	12009.1	-- (0)		6423.8

( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill and Dallas Super Neutron Monitors, Scaling Factors 120.

Deep River Super Neutron Monitor, Scaling Factor 300.

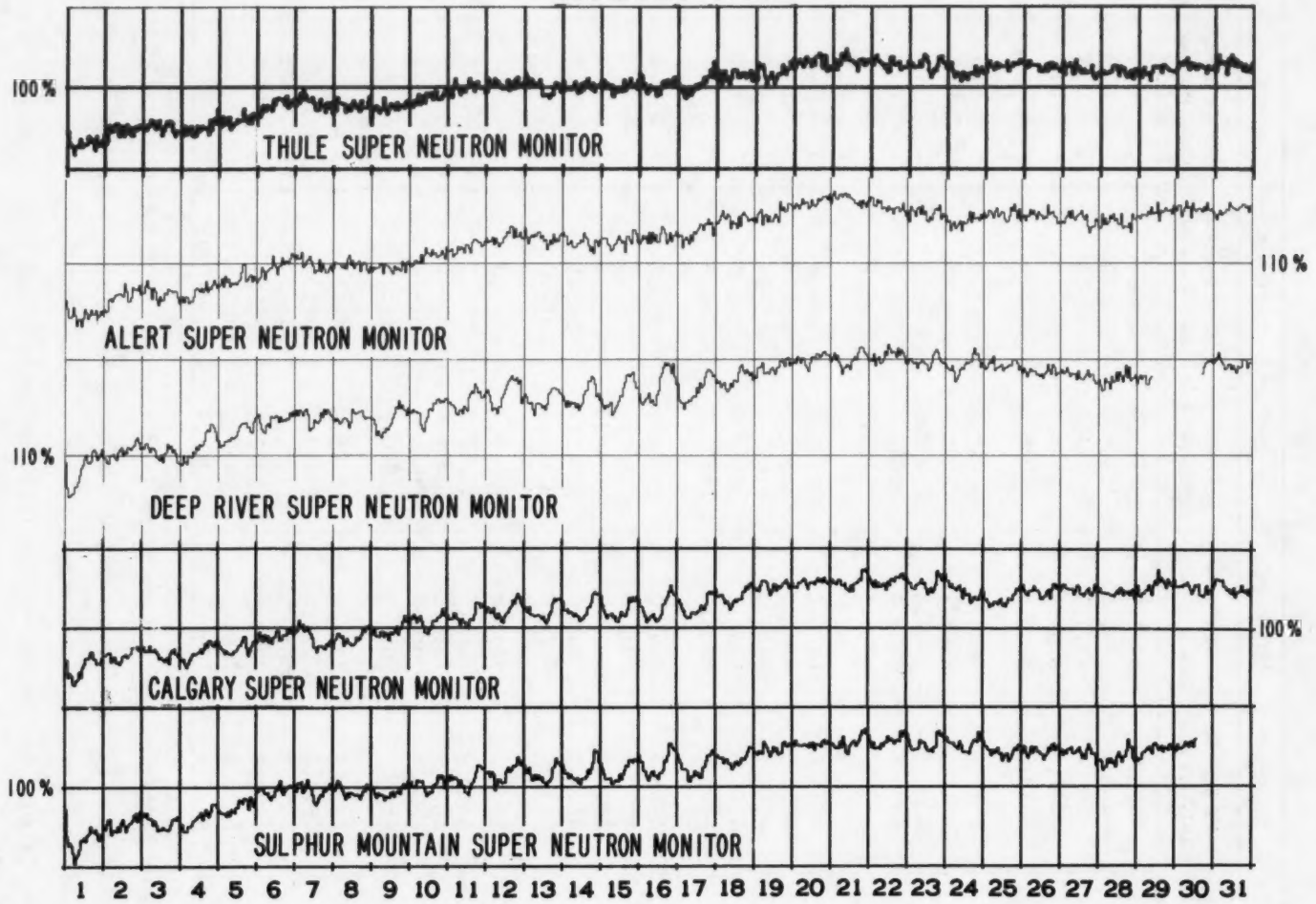
Thule, Calgary and Sulphur Mountain Super Neutron Monitors, Scaling Factors 100.

Climax IGC Station B305, Scaling Factor 100.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

AUGUST 1973

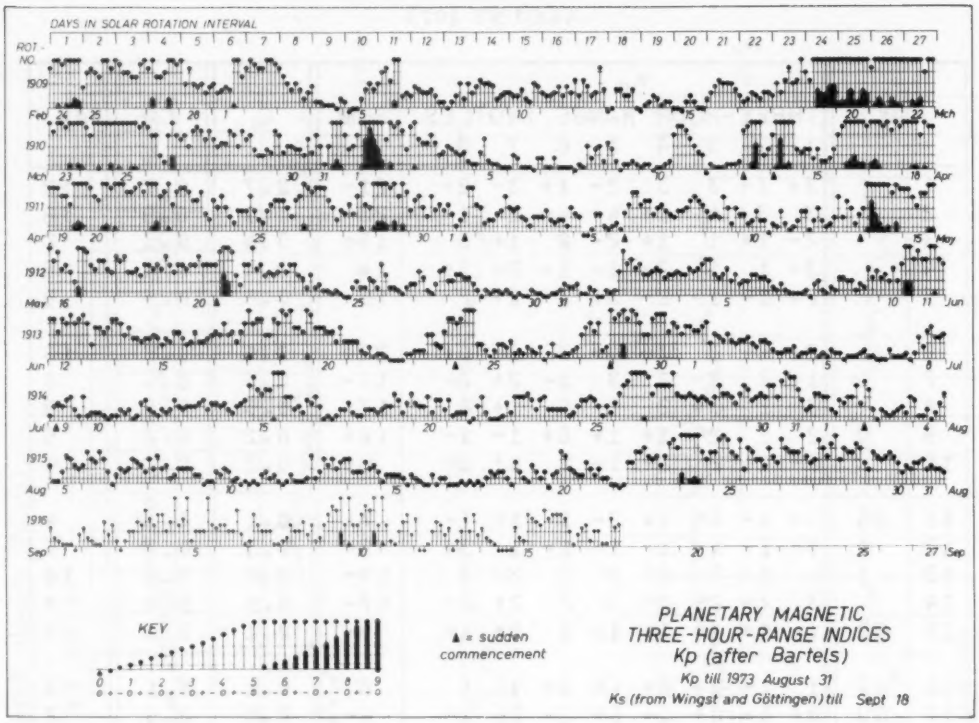


GEOMAGNETIC ACTIVITY INDICES

AUGUST 1973

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1		3+	3+	3	3	2-	1+	3-	2+	21-	0.7	0.7	12
2		3	3	4	2+	4+	4-	2-	1-	23-	1.1	0.9	16
3		2-	1+	1	1+	2-	2	1+	3	13+	0.4	0.3	7
4		3-	1	1	2-	1-	1+	2+	3+	14	0.4	0.4	8
5		2+	1-	1-	2-	3+	3	2+	2	16	0.6	0.5	9
6		2+	4-	3	3-	4-	3	2-	0+	20+	0.6	0.7	13
7		1+	2	2-	2	3	3-	2+	2-	17-	0.5	0.5	8
8		3	2	3+	2	2+	1	1+	2	17	0.5	0.5	9
9	Q	2	2	2	1+	1+	0+	1-	1-	10+	0.2	0.2	5
10	Q	2-	1+	2	2-	1-	1	0+	1-	9+	0.2	0.2	4
11	QQ	0+	1-	0+	1+	2-	1	1+	1-	7+	0.1	0.1	4
12	Q	0+	1-	1+	1-	1-	1-	1	3+	9-	0.3	0.2	5
13		1	2-	3	2+	3	2	3-	3	19-	0.6	0.6	10
14		3	2-	2-	2-	3-	2	2+	2-	17-	0.5	0.5	8
15	QQ	1-	1+	1+	1+	1+	1	0+	1+	9-	0.1	0.1	4
16	QQ	1	1-	0+	0+	1+	0+	1	1	6	0.1	0.1	3
17	QQ	0+	0+	0+	1-	0+	1-	0+	1-	4-	0.0	0.0	2
18	QQ	0+	1	2-	1+	2-	2-	1	0+	9	0.2	0.2	4
19	Q	3-	2-	1	1-	2+	2-	1	2-	13-	0.2	0.3	6
20		0	1+	2-	4-	3+	2	2-	1+	15	0.5	0.5	9
21	Q	1+	3-	2	1+	2	1	1	0+	12-	0.3	0.3	6
22		0+	0	0+	3-	3-	4-	4-	4	17+	0.7	0.7	12
23	D	3+	3	3+	2+	3+	4+	5-	4	28+	1.2	1.1	22
24	D	6	5	5+	6-	5+	4-	3	4-	38-	1.4	1.5	46
25	D	4-	5-	5	5-	4-	3+	5-	2	32-	1.3	1.3	29
26		4	4-	3	3	2+	4	3+	3-	26	0.9	1.0	18
27	D	5-	4	4-	4-	4-	5	3+	3-	31-	1.2	1.2	26
28	D	3	5-	4	3+	4+	5	3	4	31+	1.3	1.2	28
29		4-	4-	4+	4	3-	2	4-	3+	27+	1.1	1.0	20
30		3	3+	4-	3+	3-	2-	2+	2	22	0.7	0.8	13
31		3-	3-	3	2	2+	2	2	2-	18+	0.5	0.5	9
										MEAN	0.59	0.58	12

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

	1972				1973							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	5	7	98	6	11	17	22	91	17	3	19	12
2	6	5	42	5	2	14	40	54	12	20	11	16
3	5	4	13	6	2	16	14	26	9	14	7	7
4	6	7	6	4	11	7	4	9	8	19	4	8
5	5	2	3	2	21	9	6	7	5	10	4	9
6	10	2	7	3	20	15	28	4	13	8	3	13
7	5	8	7	10	8	14	8	4	16	4	3	8
8	9	4	7	6	15	25	7	8	17	6	13	9
9	8	4	7	4	16	21	11	7	12	9	8	5
10	15	6	4	2	28	11	8	4	7	33	6	4
11	11	19	7	3	24	8	8	24	6	34	6	4
12	5	21	6	8	25	9	14	3	7	30	6	5
13	53	21	4	30	16	4	5	46	20	24	8	10
14	54	26	4	9	8	7	4	57	80	18	8	8
15	24	8	17	29	9	8	3	9	37	13	32	4
16	19	12	31	33	8	10	12	60	32	11	15	3
17	26	2	12	13	5	16	6	51	27	18	6	2
18	14	11	9	8	3	11	20	46	22	30	6	4
19	6	34	11	7	10	10	82	42	21	38	10	6
20	4	14	27	4	29	9	80	46	23	18	9	9
21	2	16	9	2	22	49	58	42	46	6	5	6
22	4	13	13	14	5	46	53	44	20	3	6	12
23	13	18	11	30	13	48	50	25	15	10	14	22
24	16	11	5	13	22	54	49	14	4	34	6	46
25	6	6	8	4	20	31	50	14	6	6	9	29
26	7	8	14	5	20	34	32	28	8	4	36	18
27	8	7	11	2	33	44	28	26	10	4	29	26
28	8	11	12	4	33	20	22	26	8	21	14	28
29	25	21	9	15	22		16	59	3	41	18	20
30	8	20	4	19	15		15	18	3	29	19	13
31		29		13	6		33		4		26	9
MEAN	13	12	14	10	16	20	25	30	17	17	12	12

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)
AUGUST 1973

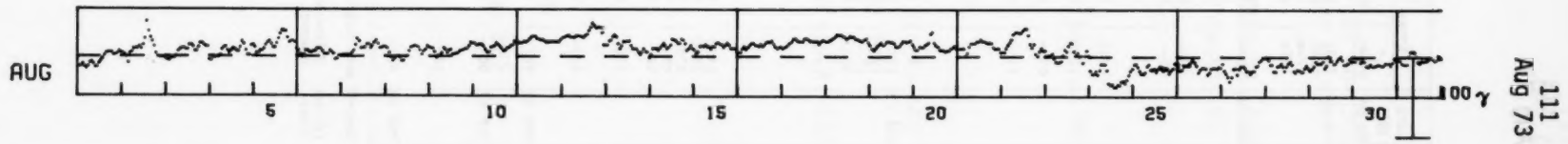
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

AUGUST 1973

(Time-UT)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-12	-12	-10	-13	-15	-13	-9	-7	-10	-14	-13	-9	-5	-3	1	4	5	5	5	2	2	3	6	4
2	3	2	-1	-8	3	5	9	10	9	12	9	14	22	43	31	23	18	12	3	-1	-2	-2	-1	-3
3	-5	-5	-8	-2	-3	0	6	8	10	10	8	8	14	14	12	5	5	11	15	16	14	12	12	-5
4	-6	-2	-2	-1	-1	1	8	11	12	7	4	7	10	8	6	6	11	18	15	7	1	1	13	14
5	11	6	4	7	7	9	14	17	19	15	11	11	15	22	28	32	31	31	23	17	19	19	17	9
6	7	2	-1	2	7	7	5	4	6	6	9	10	9	5	3	2	3	7	5	3	-4	-3	1	1
7	2	2	2	2	2	4	7	14	22	19	10	10	11	15	15	10	13	17	20	15	10	11	12	11
8	10	4	-2	-6	-8	-1	0	-2	-6	-6	-1	0	5	11	12	13	12	11	7	2	6	8	13	11
9	10	9	5	-2	0	1	4	10	8	4	7	8	2	3	3	4	5	7	8	9	10	13	17	16
10	16	14	14	15	13	12	8	5	5	11	12	13	15	14	12	9	6	7	10	11	13	14	19	17
11	17	15	15	18	17	19	21	24	25	24	22	21	20	20	19	17	13	18	18	18	19	18	18	21
12	23	24	25	26	28	23	23	25	25	25	24	23	25	27	32	35	41	38	35	36	35	29	14	13
13	14	19	20	24	26	24	15	9	13	18	18	19	19	13	9	9	9	5	2	5	9	5	5	-2
14	2	9	10	9	7	10	13	16	13	9	11	14	21	20	19	15	15	21	20	15	7	9	13	9
15	7	3	5	12	13	12	14	12	12	9	12	12	15	17	15	14	11	14	16	14	10	9	9	5
16	4	5	9	12	8	11	14	16	16	14	13	12	15	12	14	17	13	17	19	15	12	10	11	12
17	10	11	12	14	16	13	22	22	20	18	18	18	22	22	21	19	19	18	18	18	15	18	20	19
18	18	19	20	22	23	25	27	26	27	25	24	22	23	25	24	24	22	21	20	19	19	21	22	17
19	14	9	7	10	13	15	17	14	15	18	19	17	18	16	12	12	13	16	19	18	17	19	20	15
20	12	8	8	12	11	11	14	15	17	28	30	17	14	12	8	7	9	6	7	7	9	11	13	10
21	9	9	9	9	0	4	12	16	16	16	18	18	21	19	18	17	15	17	16	11	9	10	10	5
22	5	5	10	14	17	21	27	30	30	29	29	32	34	34	26	15	11	15	3	0	5	10	7	7
23	1	1	0	3	-3	-7	-8	-7	-6	1	8	6	13	17	16	6	1	4	0	1	-8	1	7	1
24	-18	-22	-22	-19	-23	-17	-10	-10	-10	-17	-33	-35	-34	-38	-38	-35	-35	-31	-30	-33	-29	-23	-18	-15
25	-10	-9	-13	-18	-21	-22	-20	-12	-10	-16	-17	-15	-19	-15	-12	-15	-17	-14	-16	-21	-17	-15	-9	-8
26	-13	-17	-15	-11	-11	-12	-9	-5	-6	-7	-11	-20	-16	-16	-14	-15	-22	-20	-15	-14	-14	-15	-13	-14
27	-9	-17	-21	-25	-31	-23	-15	-14	-22	-15	-12	-12	-14	-19	-18	-21	-19	-18	-12	-11	-6	-4	-1	-2
28	-2	-4	-10	-10	-18	-19	-12	-11	-9	-12	-18	-12	-8	-5	-10	-18	-20	-16	-17	-19	-19	-14	-11	-14
29	-17	-15	-12	-6	-8	-3	-9	-5	-14	-11	0	-5	-5	-9	-8	-5	-3	0	-4	-10	-10	-8	-3	-6
30	-5	-5	-1	-2	-7	-4	-6	-12	-13	-10	-12	-12	-11	-10	-11	-12	-11	-9	-9	-8	-11	-7	-2	-5
31	-4	-5	-8	-10	-10	-10	0	6	6	5	0	-6	-8	-5	-6	-5	-4	-2	-1	-3	-5	-4	1	-2



111
Aug 73

PRINCIPAL MAGNETIC STORMS

AUGUST 1973

DATE 1973 MO. DA	STORM TIME UT START	STORM TIME UT END MO. DA. HR	OBS.	GEO-MAG. LAT.	SUDDEN COMMENCEMENT TYPE	AMPLITUDES D(')	AMPLITUDES H(γ)	AMPLITUDES Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO. DA.	3-HOUR PERIOD	K INDEX	RANGES D (')	RANGES H (γ)	RANGES Z (γ)	STORM NUMBERS
708 02	1251	08 02 20	IRKU	40.8N	SC	- 1.6	36	7	M	08 02	5	5	6	77	13	42
	1248	08 03 03	MBOR	21.3N	SC *	- 0.2	+25	--	M	08 22	5	5	2	58	--	42
	1248	-- -- --	HYDE	7.6N	SC	- 0.4	+23	- 2	-	-- --	-	-	--	--	--	42
	1250	08 02 19	KGLN	57.3S	SC	--	--	--	M	08 02	5,6,7	3	--	--	--	42
708 22	10--	08 29 12	COLL	64.6N	..	..	..	..	MS	08 24	4	7	200	1800	1390	43
										08 25	4	7				43
										08 28	5	7				43
										08 29	4	7				43
	10--	08 30 14	SITK	60.0N	..	..	..	..	S	08 24	5	9	130	1290	860	43
	15--	08 29 02	WITT	54.1N	..	..	..	..	MS	08 24	1	6	35	255	80	43
										08 25	7	6				43
										08 27	6	6				43
										08 28	6	6				43
	1210	08 25 12	MBOR	21.3N	..	..	..	..		08 23	7,8	4	--	--	--	43
										08 24	1,2	4				43
	1212	08 24 20	HYDE	7.6N	SC	- 0.1	+ 6	- 1	M	08 23	7	5	6	135	21	43
										08 24	3,5					43
	09--	08 30 15	PMOR	18.6S	..	..	..	..	M	08 24	4,5	5	5	100	40	43
										08 29	4	5				43
	11--	08 30 21	GNAN	43.2S	..	..	..	..	M	08 23	6,7	5	16	110	100	43
										08 24	4,5					43
										08 25	4					43
										08 27	6					43
										08 28	5,6					43
										08 29	1					43
708 23	1240	08 26 21	NEWP	55.1N	SC	1	9	--	MS	08 24	1,4	6	48	212	306	43
	12--	08 29 13	FRED	49.6N	..	..	..	..	MS	08 24	2	6	34	135	70	43
	12--	08 29 17	BOUL	49.0N	..	..	..	..	M	08 24	1	5	33	120	80	43
	13--	08 24 19	IRKU	40.8N	..	..	..	..	M	08 23	6,7	5	22	131	52	43
										08 24	1,3,5	5				43
	12--	08 30 16	TUCS	40.4N	..	..	..	..	M	08 23	6	5	16	110	15	43
										08 24	1,2,3	5				43
										08 24	4,5					43
										08 25	2,3,4	5				43
										08 27	2	5				43
										08 28	2,3	5				43
										08 29	4	5				43
	2330	08 24 30	ALIB	9.5N	..	..	..	..	M	08 24	3,5	5	6	121	42	43
	2330	08 24 30	ANNA	1.5N	..	..	..	..	M	-- --	-	-	5	157	44	43
	2330	08 24 30	TVAN	1.1S	..	..	..	..	M	-- --	-	-	4	179	90	43
	09--	08 26 12	APIA	16.1S	..	..	..	..	M	08 24	4	5	5	102	28	43
	12--	08 25 21	HRMN	33.3S	..	..	..	..	M	08 24	3	5	17	89	64	43
										08 25	7	5				43
	1400	08 25 15	TOOL	46.7S	..	..	..	..	M	08 23	7	5	23	110	40	43
										08 24	3,4	5				43
										08 25	4	5				43
	12--	08 26 05	KGLN	57.3S	..	..	..	..	MS	08 24	5	6	--	--	--	43
708 24	22--	08 25 22	IRKU	40.8N	..	..	..	..	M	08 25	4,7	5	20	112	36	43
708 27	00--	08 30 14	NEWP	55.1N	..	..	..	..	M	08 27	1,2,3	5	39	121	147	43
										08 28	2,3					43
										08 29	2,3,4					43
	01--	08 27 19	IRKU	40.8N	..	..	..	..	MS	08 27	6	6	15	110	26	43
708 28	03--	08 29 14	IRKU	40.8N	..	..	..	..	M	08 28	5,6	5	19	108	35	43
										08 29	3,4	5				43

Reports were received from the following observatories:

College Sitka, Witteveen Newport, Fredericksburg Boulder, Irkutsk Tucson, San Juan M'Bour, Honolulu Alibag, Hyderabad Guam, Annamalainagar Trivandrum, Port Moresby Hermanus, Gnangara Toolangi, Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

AUGUST 1973

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bulletins nr. 12 and 32. Times of ssc, si and bay-commencements are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

02 1249 A: NU MA TL PE KS MB LM AC TW; B: DO WN WI DB VI IK EB HU PP GN KG; C: NI PM (si: A: FU; B: KA SS - bp: B: DU)
22 1212 B: IK HU; C: VI CI MB? PP? TN (si: A: FU; B: WN; C: KA)

Sudden impulses found in the magnetograms (si)

12 2147 A: SI FU LG IK FR; B: WN WI NI EB PE LM PP; C: TL? SS HU TN (ssc: A: MA)

Rapid variations in form of bays (b, bs, bp, bps)

06 0310 b: A: HU; B: WN - bp: B: EB CI MB - bps: A: AC; B: TW
08 2247 bp: A: PE; B: IK EB; C: TL - bps: A: SO MA; B: DO LM; C: PP
25 1926 b: A: WN - bp: A: EB; B: WI NI LM KG - bps: A: MA DB IK TL (si: A: LG)
27 1730 b: A: WN - bs: A: NU - bp: A: WI TL; B: NI EB LM KG - bps: A: IK; B: DB (si: A: LG)
28 1645 b: B: WN - bp: A: MA; B: NI EB KG - bps: A: SO; B: DB IK TL (si: A: LG)

Giant pulsations (pg)

02	1441 - 1500	FUA	27	0900 - 1010	KS
05	1349 - 1749	MA		1200 - 1240	KS
05	1440 - 1515	FUA		1610 - 1720	KS
19	1345 - 1400	FUA	28	2120 - 2330	KS
			29	0335 - 1530	KS

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

02	1102 - 1114	NI	14	1400 - 1411	SO NI (si: B: FU)
08	1309 - 1345	DB	18	0859 - 0910	LG

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

AUGUST 1973

North Atlantic

AUG. 1973	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES 00 TO 06	06 TO 12	12 TO 18	18 TO 24	SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF 02	08	14	20	GEOMAGNETIC INDICES K_{FR} HALF DAY (1)	(2)	A_{FR} OBSERVED
01	5+	7	6o	5o	5-	6o	5	5	6	6	3	1	9
02	6o	6	6-	6-	6+	6o	6	6	6	5	(4)	3	20
03	6+	6	6o	6+	6o	6+	6	6	6	6	2	3	9
04	7-	6	7-	7-	7-	6o	6	6	6	6	2	2	10
05	6+	7	7-	6o	6+	7-	6	6	6	6	2	3	9
06	6+	7	7-	6+	7-	6o	6	5	5	6	3	2	13
07	6+	7	6o	6+	6+	6+	6	6	6	6	2	2	8
08	6+	7	6+	6o	7-	7-	6	6	5	6	3	2	11
09	6+	7	6o	6o	7-	6+	6	6	6	6	2	1	6
10	6+	7	7-	6o	7o	6+	6	6	6	6	2	1	4
11	7-	6	7-	6o	7o	7o	6	6	6	6	1	1	3
12	7-	6	7-	6+	7-	7o	6	6	6	6	1	2	5
13	6+	6	7-	6o	7-	6+	6	6	6	6	2	3	13
14	6+	7	6+	6+	6+	7o	6	6	6	6	2	2	8
15	7-	7	6o	6+	7o	7o	6	5	6	6	2	1	5
16	7-	7	7-	7-	7-	7-	6	6	6	6	1	1	3
17	6+	7	6+	6+	6+	7-	6	6	6	6	1	0	1
18	6+	7	7-	7-	6o	6+	6	6	6	6	1	1	4
19	6+	7	7-	6-	6o	7-	6	6	6	6	2	2	6
20	7-	7	7-	6o	6+	7o	6	6	6	6	2	2	8
21	7-	6	7-	6o	7-	7o	5	6	6	7	2	1	6
22	7-	5	7-	6o	7o	7o	6	6	6	7	1	3	10
23	6+	7	6+	6-	6+	7o	6	5	6	6	3	(4)	17
24	5o	6	5+	5+	4+	6-	6	4	5	5	(6)	(4)	44
25	5-	6	4o	4+	5o	6-	4	4	5	4	(5)	3	29
26	6-	6	5-	6o	6+	6+	4	4	5	5	(4)	3	16
27	5+	6	6-	4+	6-	6o	5	4	5	6	(4)	3	19
28	5+	7	6-	4o	6o	6o	5	5	6	7	(4)	3	23
29	6-	7	6-	5+	6o	6o	5	5	5	6	(4)	3	21
30	5+	5	5-	5-	6+	6o	6	5	6	6	3	2	14
31	6-	5	6o	5o	6+	6o	5	6	6	6	3	2	11

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

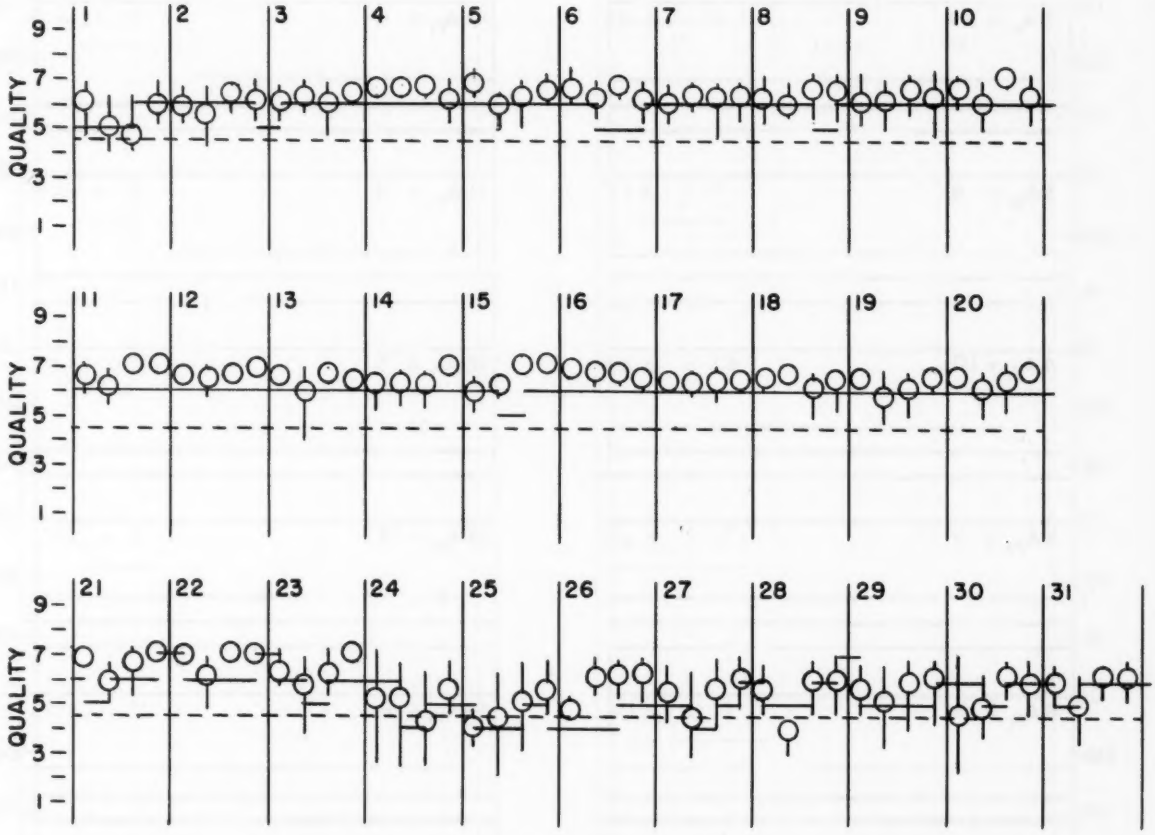
AUGUST 1973

North Atlantic

– Short term forecast
o Quality figure

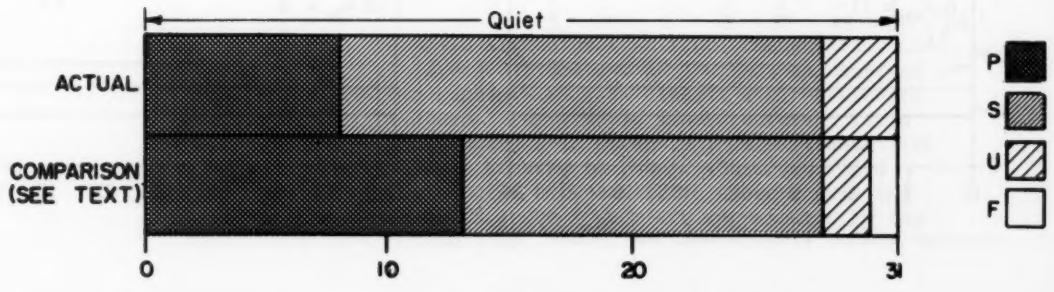
| range of reports

Day



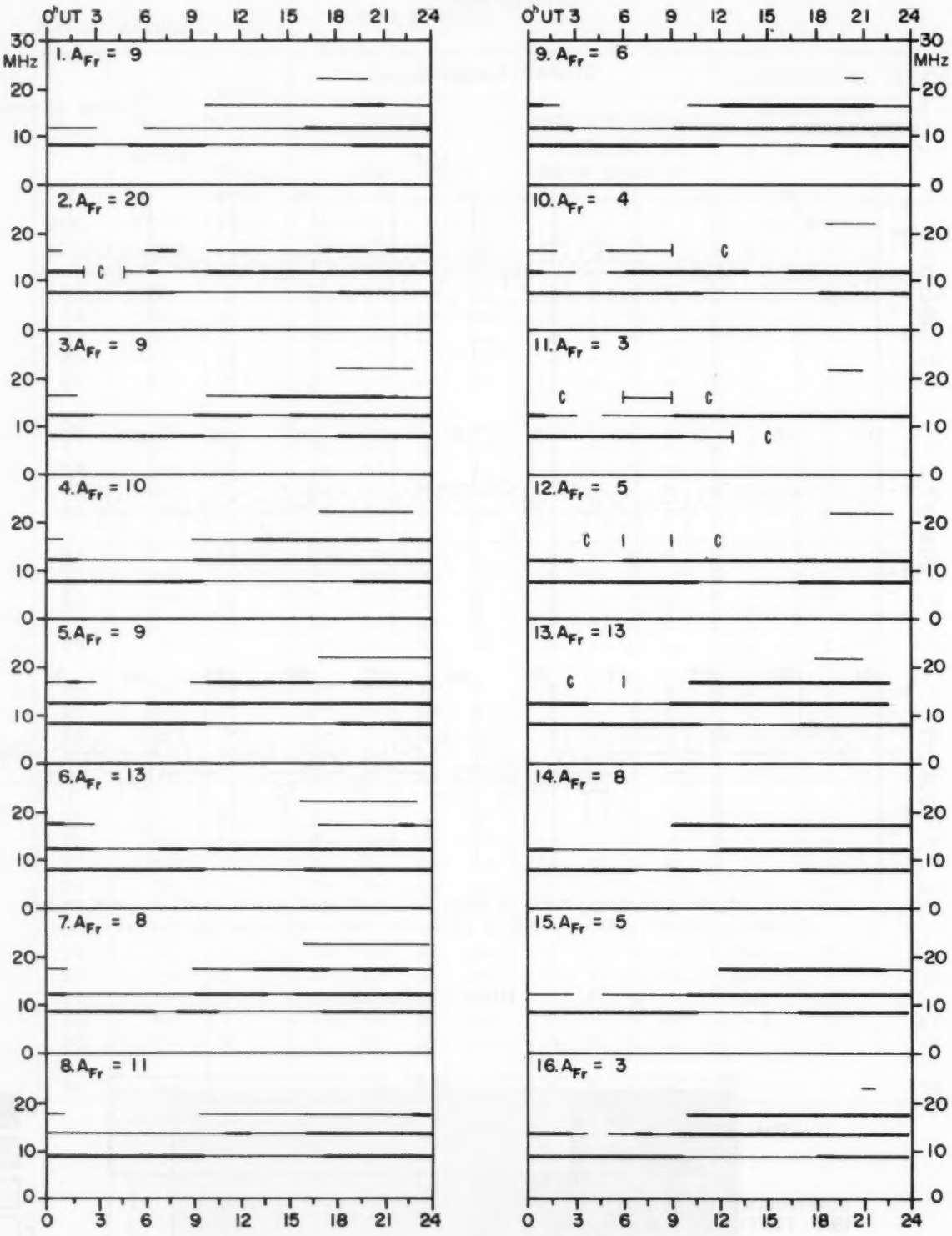
Outcome of advance forecasts of High Latitude radio propagation conditions
(scored against observed North Atlantic radio propagation conditions)

HIGH LATITUDE



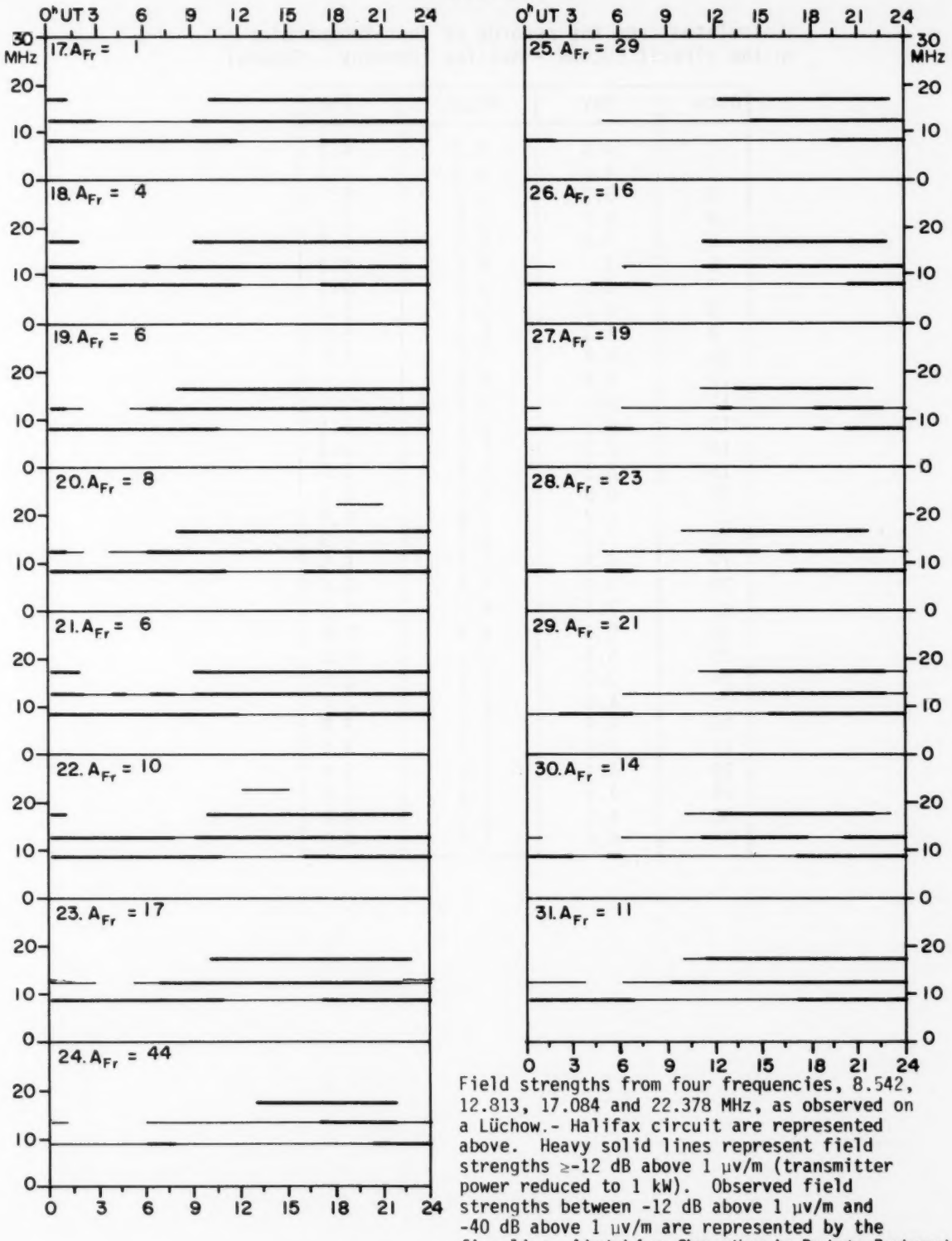
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1973



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1973



Field strengths from four frequencies, 8.542, 12.813, 17.084 and 22.378 MHz, as observed on a Lüchow.- Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 µv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 µv/m and -40 dB above 1 µv/m are represented by the fine line. Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

AUGUST 1973

Calculated from the records of four frequencies
on the circuit Lüchow - Halifax (Germany - Canada)

Date	Day	Night	D+N
1	4.5	4.7	4.2
2	4.6	4.6	4.4
3	5.7	5.3	5.2
4	6.4	6.5	6.1
5	7.2	6.6	6.4
6	4.7	4.6	4.3
7	6.6	4.0	5.3
8	5.4	6.1	5.2
9	6.3	6.2	5.8
10	6.4	5.5	5.6
11	6.6	6.5	6.1
12	6.9	6.5	6.3
13	6.1	4.1	5.1
14	6.3	4.6	5.3
15	6.1	5.9	5.7
16	6.8	6.5	6.1
17	7.7	6.8	6.8
18	7.2	6.1	6.3
19	6.3	5.3	5.5
20	7.5	6.7	6.6
21	7.3	6.6	6.5
22	6.6	4.9	5.8
23	5.5	2.1	4.2
24	3.0	1.9	2.6
25	4.6	2.9	3.7
26	4.9	2.5	3.8
27	3.5	2.3	3.0
28	4.1	2.2	3.4
29	4.5	2.4	3.5
30	4.5	3.6	4.0
31	6.0	4.9	4.9

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OCTOBER

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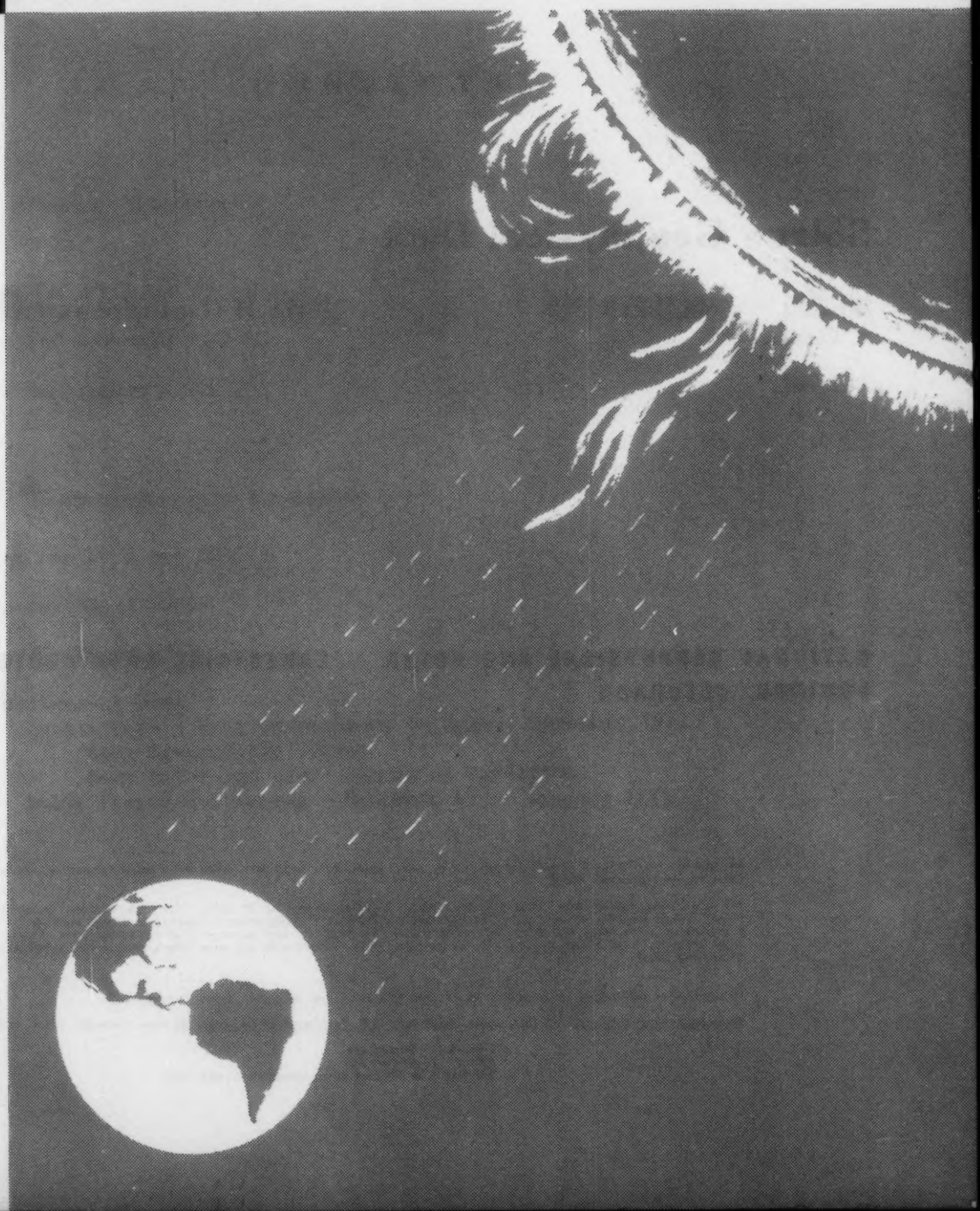
SOLAR-GEOPHYSICAL DATA
(comprehensive reports)

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service



OCTOBER 1973

NUMBER 350-PART II
DATA FOR
APRIL 1973
MARCH 1973
& MISCELLANEA

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Solar - Geophysical Data

NO. 350 OCTOBER 1973

Part II (Comprehensive Reports)

DATA FOR
APRIL 1973
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NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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* * * * *

To standardize referencing these reports in the open literature, the following format is recommended:

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*CRPL-FB 135 through 269
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299 Part I or 299 Part II to number of current issue.

SOLAR - GEOPHYSICAL DATA

No. 350

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February]973 "Solar-Geophysical Data" (Number 342).

SOLAR FLARES
Confirmed

APRIL 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.				TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
942 MANI	01	0005E	0018	0005U	N13	E60	.889	12298	5.5	13D	--N	2		0005	.31	.59			2
GRP47943	01	0023	0041	0029	N10	W41	.695	12280	28.9	18	-N				1.47				3 3 3 3
MANI	01	0022	0040	0026	N10	W40	.684	12280	29.0	18	-N	2		0026	.62	.86			
VORO	01	0023	0044	0026	N09	W43	.714	12280	28.8	21	1B		C	0026	2.89	3.80		81	ESL
PALE	01	0034E	0039	0034U	N10	W40	.684	12280	29.0	5D	-N	3	C		.91				DE
GRP47944	01	0131	0205	0137	N09	W41	.691	12280	29.0	34	-N				.78				3 3 3 4
MANI	01	0128	0205	0137	N09	W40	.679	12280	29.1	37	-F	2		0137	.41	.57			
PALE	01	0133	0144D	0136	N10	W40	.684	12280	29.1	11D	-F	3	C		.55				F
VORO	01	0137E	0155D		N08	W42	.699	12280	28.9	18D	-B		P	0138	1.38	1.88		69	EL
GRP47945	01	0238	0254	0242	N10	W40	.684	12280	29.1	16	--N				.54				2 2 2 4
MITK	01	0238	0254	0242	N10	W40	.684	12280	29.1	16	-N		C	0242	.62	.90			D
PALE	01	0242E	0243D	0242U	N10	W40	.684	12280	29.1	1D	-N	3	C		.45				
GRP47947	01	0608	0630	0613	N09	W43	.714	12280	29.0	22	--F				.86				2 2 2 4
MANI	01	0608	0630	0613	N09	W43	.714	12280	29.0	22	-N	2		0613	.62	.89			
BUCA	01	0615E	0630D		N09	W43	.714	12280	29.0	15D	-F		C	0617	1.10	1.60			
GRP47948	01	0751	0814	0758	N12	E51	.809	12298	5.2	23	-B				.78				6 6 5 9
CANR	01	0735	0810	0756	N13	E52	.821	12298	5.2	35	-B		V	0756	.80	1.20			
ISTA	01	0750	0810		N12	E51	.809	12298	5.2	20	-N								
MANI	01	0752	0820	0758	N12	E51	.809	12298	5.2	28	-N	2		0758	.41	.70			
BUCA	01	0754E	0814D		N11	E50	.796	12298	5.1	20D	-N		C	0802	1.10	1.80			
ARCE	01	0759E	0819		N11	E52	.816	12298	5.2	20D	-B		C	0800	1.00	1.70			
CATA	01	0800E	0810	0800	N13	E50	.803	12298	5.1	13D	-B	1		0800	.58	.97		(501)	
GRP47949	01	0810	0837	0813	S04	E13	.228	12293	2.3	27	1B				2.61				7 7 6 10
ISTA	01	0805	0830	0810	S05	E13	.225	12293	2.3	25	2B								
CATA	01	0807	0845	0811	S04	E12	.212	12293	2.2	38	1B	3		0811	3.19	3.26		(229)	
ARCE	01	0810	0839D	0817	S04	E12	.212	12293	2.2	29D	-N		C	0817	.40	.40			
MANI	01	0811	0845	0815	S04	E12	.212	12293	2.2	34	1N	2		0815	2.84	2.89			
CANR	01	0812	0814D		S04	E12	.212	12293	2.2	2D	1B		V	0814	3.00	3.00			
BUCA	01	0813E	0830D		S04	E13	.228	12293	2.3	17D	1N		C	0817	2.21	2.30			E
CAPS	01	0814	0830		S04	E14	.245	12293	2.4	16	1B	2	P	0815	4.00	4.00		(438)	
GRP47950	01	1037	1048	1038	N09	W43	.714	12280	29.2	11	--N				.32				3 3 3 4
CATA	01	1035	1050	1035	N10	W45	.741	12280	29.1	15	-N	3		1035	.58	.86		(178)	
CANR	01	1038	1038D		N08	W44	.722	12280	29.1		-F		V	1038	.20	.30			
TEHR	01	1038E	1046	1038U	N08	W40	.675	12280	29.4	8D	-N	3	V		.17				DE
	01	1122	1130	NO FLARE PATROL															
GRP47954	01	1402	1417	1405	S04	E10	.178	12293	2.3	15	-F				1.67				5 4 2 5
CAPS	01	1400	1420		S14	E12	.241	12293	2.5	20	-B	3	V	1407	1.20	1.20		(204)	C
BOUL	01	1401	1425	1403	S03	E09	.168	12293	2.3	24	-N		V						
CANR	01	1401E	1411		S03	E12	.216	12293	2.5	10D	1F		V	1406	2.40	2.40			
RAMY	01	1402E	1402D	1402U	S04	E08	.145	12293	2.2		-N	2	C		.93				F
CAPF	01	1403	1415	1410	S04	E10	.178	12293	2.3	12	-F		P	1410		.86			
GRP47955	01	1508	1527	1509	N15	E52	.828	12298	5.5	19	--N				.60				2 2 2 4
BOUL	01	1507	1525	1509	N17	E51	.825	12298	5.5	18	-N		V	1509	.80	1.20			
CAPS	01	1509	1528		N13	E52	.821	12298	5.5	19	-N	3	V	1514	.40	.70		(189)	C
GRP47956	01	1530	1553	1536	S04	E10	.178	12293	2.4	23	1N				3.40				4 4 3 4
BOUL	01	1509	1530	1512	S03	E09	.168	12293	2.3	21	-N		V						
CAPS	01	1510	1600	1536	S04	E12	.212	12293	2.5	50	1B	3	V	1536	4.00	4.00		(290)	
CANR	01	1530	1545	1536	S03	E11	.200	12293	2.5	15	1N		V	1536	3.60	3.60			
BOUL	01	1530	1557	1536	S03	E09	.168	12293	2.3	27	1N		V						
RAMY	01	1532E	1551	1534	S04	E07	.129	12293	2.2	19D	1N	3	C		2.60				F
GRP47957	01	1703	1734	1708	N13	E44	.742	12298	5.0	31	-B				1.44				5 5 4 7
RAMY	01	1702	1733	1707	N13	E45	.752	12298	5.1	31	-B	3	C		1.58				F
HCMA	01	1703	1735		N13	E44	.742	12298	5.0	32	1B		C	1712	1.39	2.10			FH
CANR	01	1703	1730	1705	N14	E45	.756	12298	5.1	27	1B		V	1705	2.00	2.80			
HUAN	01	1703	1732	1711U	N11	E45	.744	12298	5.1	29	-N	1	C	1711	.77	1.17			E
BOUL	01	1704	1742	1708	N15	E43	.740	12298	4.9	38	-N		V						
GRP47958	01	1745	1759	1749	N14	E49	.796	12298	5.4	14	--B				.55				4 4 4 6
BOUL	01	1743	1806	1750	N17	E50	.817	12298	5.5	23	-N		V	1750	.70	1.00			
HCMA	01	1744	1755	1748	N14	E48	.787	12298	5.3	11	-B		C	1748	.52	1.00			E
CANR	01	1745	1756	1750	N13	E48	.783	12298	5.3	11	-B		V	1750	.40	.60			
HUAN	01	1746	1754D	1748	N12	E49	.789	12298	5.4	8D	-N	1	P	1748	.57	.95			
	01	1922	1938	NO FLARE PATROL															

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47959	01	2000	2110	2003	N08	W55	.836	12280	28.7	70	-N				.80				2 1 1 2
BOUL	01	2000	2110D	2003	N08	W55	.836	12280	28.7	70D	-N		V		.80	1.40			
PALE	01	2001E	2049D	2010	N14	W68	.943	12280	27.7	48D	-N	2	C		.55				F
	01	2110	2128	NO FLARE PATROL															
	01	2145	2150	NO FLARE PATROL															
GRP47963	01	2202	2311	2213	N14	E43	.736	12298	5.1	69	1B				4.05				3 2 2 3
VORO	01	2202	2310	2210	N16	E43	.745	12298	5.1	68	2N		C	2210	6.65	9.43		83	FHJL
PALE	01	2214E	2312	2215	N12	E42	.716	12298	5.1	58D	-B	2	C		1.44				DE H
MANI	01	2259E	2310	2259U	N13	E41	.709	12298	5.0	11D	-N	2		2259	.52	.76			
961 VORO	01	2316	2335	2320	N15	E41	.719	12298	5.0	19	-N		C	2320	1.02	1.42		59	EHL 3
963 ATHN	02	0459	0507	0502	N11	E43	.722	12298	5.4	8	--F	1	C		.33				DE 3
GRP47967	02	0913	0922	0915	N09	W59	.873	12280	29.0	9	--F				.30				4 4 3 10
MONT	02	0912	0918	0914	N09	W59	.873	12280	29.0	6	-N		C	0914	.21				
TEHR	02	0913E	0918	0915	N08	W57	.854	12280	29.1	5D	-N	3	C		.36				DE
ISTA	02	0914	0929		N09	W59	.873	12280	29.0	15	-F								E
ATHN	02	0914E	0922	0916	N10	W60	.883	12280	28.9	8D	-F	3	V		.33				DE
ATHN	02	0914E	0918D	0914U	N11	W60	.885	12280	28.9	4D	-F	3	C		.33				DE
MONT	02	0920	0939	0926	N09	W61	.889	12280	28.8	19	-N		C	0926	.21				EH
GRP47969	02	0948	1012	0954	N14	E37	.670	12298	5.2	24	--N				.47				8 8 6 8
ARCE	02	0940E	1005D		N13	E37	.664	12298	5.2	25D	-N		C	0953	.43	.60			
MONT	02	0947	1014	0954	N15	E38	.687	12298	5.3	27	-N		C	0954	.72				D
WEND	02	0949E	1008D		N15	E36	.665	12298	5.1	19D	-N								
ISTA	02	0949	1006		N13	E38	.675	12298	5.3	17	-B								
ATHN	02	0950E	1012	0953	N14	E40	.703	12298	5.4	22D	-N	3	V		.50				DE
CANR	02	0950	1015	0953	N14	E38	.681	12298	5.3	25	-N		V	0953	.60	.80			
CATA	02	0950	1015	0955	N15	E37	.676	12298	5.2	25	-B	1		0955	.29	.39		(229)	
CAPS	02	0950	1013		N15	E35	.654	12298	5.0	23	-N	2	V	0953	.30	.40		(168)	
GRP47970	02	1045	1107	1047	S04	W04	.082	12293	2.1	22	--F				.49				2 2 2 7
MONT	02	1045	1103	1047	S05	W04	.074	12293	2.1	18	-N		C	1047	.41				E
RAMY	02	1045E	1110	1046U	S03	W04	.092	12293	2.1	25D	-F	2	V		.56				DE
GRP47972	02	1239	1255	1245	N14	E35	.647	12298	5.2	16	--N				.31				3 3 3 6
ARCE	02	1236E	1303D		N15	E36	.665	12298	5.2	27D	-F		C	1240	.37	.50			
MONT	02	1239	1251	1245	N15	E37	.676	12298	5.3	12	-N		C	1245	.21				D
TEHR	02	1243	1251	1245	N12	E32	.599	12298	4.9	8	-N	3	C		.36				F H
GRP47973	02	1240	1303	1251	S13	E48	.739	12299	6.1	23	--F				.31				2 1 1 6
ARCE	02	1240E	1303D		S13	E48	.739	12299	6.1	23D	-F		C	1240	.31	.50			
MONT	02	1241	1301	1251	S13	E49	.751	12299	6.2	20	-F		C	1251	.10				
GRP47974	02	1323	1410	1328	N12	E34	.623	12298	5.1	47	1B				3.33				6 6 6 6
CANR	02	1322	1345	1326	N12	E31	.587	12298	4.9	23	1B		V	1326	2.80	3.30			
RAMY	02	1322	1410	1326	N11	E35	.629	12298	5.2	48	1B	3	V		1.96				F
WEND	02	1323E	1343D		N14	E33	.624	12298	5.0	20D	2N		P		8.25				
TEHR	02	1324E	1352	1327	N10	E35	.623	12298	5.2	28D	1N	3	V		1.98				F
ATHN	02	1324E	1403	1325	N12	E38	.670	12298	5.4	39D	-B	2	V		1.49				F
CATA	02	1325	1350D	1335	N13	E33	.618	12298	5.0	25D	1B	3		1335	3.48	4.15		(229)	Z
976 HUAN	02	1512	1517		S05	W02	.043	12293	2.5	5	--F	1	C	1516	.10	.10			D 3
978 PALE	02	1711E	1718	1715	S06	W10	.173	12293	2.0	7D	--B	2	C		.72				F 3
GRP47979	02	1858E	1916	1902	N13	E36	.653	12298	5.5	18	--F				.36				2 2 2 2
RAMY	02	1858E	1915D	1900U	N12	E37	.658	12298	5.6	17D	-F	3	V		.52				DE
PALE	02	1903E	1916	1904U	N13	E35	.641	12298	5.4	13D	-F	2	C		.19				F
980 PALE	02	1903E	1917	1904U	S15	E81	.984	12300	8.9	14D	--F	2	C		.19				2
GRP47981	02	1925E	1942	1927	N10	W67	.932	12280	28.8	17	--F				.36				2 2 1 2
RAMY	02	1925E	1939		N10	W66	.926	12280	28.9	14D	-F	2	V						DE
PALE	02	1927E	1944	1927U	N10	W68	.938	12280	28.7	17D	-F	2	C		.36				F
982 PALE	02	1939	2001	1944	S06	W07	.121	12293	2.3	22	--F	3	V		1.03				DE 2
983 PALE	02	2031E	2037	2035	N13	E33	.618	12298	5.3	6D	--F	3	V		.31				2
	02	2131	2210	NO FLARE PATROL															
984 PALE	02	2210E	2213D	2212U	S03	W08	.151	12293	2.3	3D	--N	3	V		.21				2

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IMPORTANCE		OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47985	02	2358	0009	0002	S05	W07	.124	12293	2.5	11	--N				.91				3 3 3 3
MANI	02	2358	0009	0002	S03	W08	.151	12293	2.4	11	-N	2		0002	.83	.83			
VORO	02	2358	0009	0003	S04	W09	.162	12293	2.3	11	-B		C	0003	1.29	1.28		64	E
PALE	03	0000E	0002D	0001U	S07	W05	.087	12293	2.6	2D	-F	3	V		.62				F
986 VORO	03	0056	0101D	0058	N17	E28	.592	12298	5.1	5D	--B		C	0058	.37	.44		62	D 2
988 MANI	03	0245	0251	0246	S14	E80	.981	12300	9.1	6	--N	2		0246	.31	.80			2
989 MANI	03	0322	0338D	0332	S14	E79	.977	12300	9.1	16D	--F	2		0332	.31	.78			2
990 MANI	03	0341	0423D	0343	N10	W76	.976	12280	28.5	42D	--N	1		0343	.41	1.00			2
GRP47992	03	0458	0514	0500	N13	E24	.511	12298	5.0	16	--N				.39				2 2 2 3
TEHR	03	0456E	0513	0459	N12	E22	.479	12298	4.9	17D	-N	3	C		.26				F
MANI	03	0500	0515D	0501	N14	E26	.543	12298	5.2	15D	-N	1		0501	.52	.62			
GRP47993	03	0458	0512	0501	S14	E75	.961	12300	8.8	14	-N				.45				3 3 3 4
MANI	03	0457	0515	0503	S14	E77	.970	12300	9.0	18	-N	2		0503	.52	1.25			
ATHN	03	0456E	0511	0458U	S15	E73	.951	12300	8.7	13D	-N	2	V		.66				DE
TEHR	03	0458	0510	0503	S12	E75	.961	12300	8.8	12	-N	3	C		.18				DE
GRP47996	03	0711	0720	0711	S08	W15	.258	12293	2.2	9	--N				.30				2 2 2 5
TEHR	03	0711	0720	0711	S08	W15	.258	12293	2.2	9	-N	3	C		.26				F
ATHN	03	0711E	0719	0711U	S07	W15	.257	12293	2.2	8D	-N	3	V		.33				DE
GRP47998	03	0759	0838	0804	S06	W16	.274	12293	2.1	39	-N				1.11				7 7 6 8
ATHN	03	0756	0832	0802	S07	W16	.274	12293	2.1	36	-N	3	V		1.32				DE
MEUD	03	0756	0833	0805	S05	W17	.292	12293	2.1	37	-N		C	0805	.72	.70			E
CANR	03	0758	0804	0800	S05	W13	.225	12293	2.4	6	-N		V	0800	.80	.80			
BUGA	03	0800E	0845D		S08	W16	.275	12293	2.1	45D	-F		C	0806	1.32	1.40			
CATA	03	0800	0840D	0810	S06	W17	.291	12293	2.1	40D	-N	3		0810	1.44	1.51		(191)	Z
ISTA	03	0800E	0923		S06	W16	.274	12293	2.1	83D	-N								F
MANI	03	0800	0827	0802	S07	W17	.291	12293	2.1	27	-N	2		0802	1.03	1.08			
MANI	03	0810	0840	0822	S05	W12	.208	12293	2.4	30	-F	2		0822	.83	.84			
GRP47999	03	0834	0852	0842	S06	W17	.291	12293	2.1	18	-N				.93				3 3 3 8
MANI	03	0832	0854	0838	S06	W17	.291	12293	2.1	22	-N	2		0838	1.03	1.08			
MEUD	03	0836	0850		S06	W17	.291	12293	2.1	14	-N		C	0837	.72	.70			E
HERS	03	0841E	0846D	0846D	S05	W18	.308	12293	2.0	5D	-N		P	0843	1.03	1.08			E
GRP48003	03	1334	1343	1336	N14	E21	.488	12298	5.1	9	--N				.41				3 3 3 5
ATHN	03	1333E	1341	1335	N13	E21	.477	12298	5.1	8D	-N	3	V		.33				DE
RAMY	03	1335E	1430	1338U	N14	E20	.477	12298	5.1	55D	-F	3	V		.62				DE
CATA	03	1335	1345	1335	N14	E22	.499	12298	5.2	10	-N	3		1335	.29	.33		(191)	
GRP48004	03	1412	1431	1420	N14	E21	.488	12298	5.2	19	--F				1.03				3 3 3 6
CATA	03	1410E	1445	1420	N15	E20	.488	12298	5.1	35D	1N	3		1420	2.31	2.65		(191)	
MEUD	03	1412	1426		N13	E21	.477	12298	5.2	14	-F		C	1413	.62	.70			H
HUAN	03	1413	1422		N13	E21	.477	12298	5.2	9	-F	1	C	1416	.15	.71			D
GRP48006	03	1524	1533	1525	S06	W20	.340	12293	2.1	9	--N				.57				3 3 3 6
BOUL	03	1523E	1535D	1525	S06	W19	.324	12293	2.2	12D	-N		V	1525	.80	.80			
MEUD	03	1523	1525		S06	W20	.340	12293	2.1	2	-N		C	1523	.62	.60			E
CATA	03	1525	1540D	1525	S07	W20	.340	12293	2.1	15D	-B	3		1525	.29	.30		(224)	
GRP48007	03	1527	1543	1529	S14	E68	.922	12300	8.7	16	1N				1.25				3 3 3 6
BOUL	03	1526E	1544D	1528	S10	E68	.922	12300	8.7	18D	1N		V	1528	2.25	2.56			
MEUD	03	1526	1541		S15	E68	.921	12300	8.7	15	1N		C	1528	.93				
CATA	03	1530	1540D	1530	S16	E68	.921	12300	8.7	10D	-B	3		1530	.58			(209)	
	03	2001	2035	NO FLARE PATROL															
2 STATIONS REPORTING GROUP 48012. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48012	03	2105	2128	2109	S03	W23	.394	12293	2.2	15	--N				.83				2 2 1 2
BOUL	03	2104E	2128D	2107	S03	W22	.378	12293	2.2	16D	-N		V						
RAMY	03	2105	2115D	2110U	S03	W23	.394	12293	2.2	10D	-N	3	V		.83				DE
012 RAMY	03	2105	2115D	2110U	N03	W23	.420	12293	2.2	10D	*-N	3	V		.83				DE 2
013 PALE	03	2130	2136D	2132	S06	W24	.405	12293	2.1	6D	--F	2	C		.19				F 3
016 MANI	04	0228	0237	0231	S04	W27	.454	12293	2.1	9	--N	2		0231	.31	.34			2
017 TEHR	04	0304	0314	0306	S07	W29	.482	12293	2.0	10	--F	2	C		.37				DE 3

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP48018	04	0522	0552	0525	N14	E11	.393	12298	5.0	30	--N				.47				3 3 3 3
ATHN	04	0518	0547	0523	N16	E12	.428	12298	5.1	29	-N	2	V		.50				DE
MANI	04	0523E	0556	0525	N13	E12	.387	12298	5.1	33D	-N	2		0525	.62	.67			
TEHR	04	0524	0533D	0527	N13	E10	.371	12298	5.0	9D	-N	1	C		.28				F
6 STATIONS REPORTING GROUP 48019. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48019	04	0908	0927	0912	S03	W31	.516	12293	2.1	19	--N				.57				5 5 4 8
UPIC	04	0905	0932	0910	S02	W31	.518	12293	2.1	27	-B		P	0910	.85				K
MEUD	04	0907	0915		S03	W31	.516	12293	2.1	8	-F		C	0908	.36	.40			
ATHN	04	0910E	0933	0911	S04	W32	.529	12293	2.0	23D	-F	2	V		.50				DE
KHAR	04	0910	0918	0912	S01	W29	.491	12293	2.2	8	-F		P				1.80		D
CATA	04	0915E	0935	0915	S03	W30	.501	12293	2.1	20D	-N	3		0915	.58	.67		(166)	
48019	04	0918	0933	0923	S04	W28	.469	12293	2.3	15	*-N				.60				3 3 2 8
ATHN	04	0910E	0933	0923	S04	W32	.529	12293	2.0	23D	-N	2	V		.50				DE
CAPS	04	0922	0932		S08	W24	.405	12293	2.6	10	-N	1	V	0924	.70	.80		(168)	
KHAR	04	0923	0930D		S01	W29	.491	12293	2.2	7D	-N		V				2.10		D
7 STATIONS REPORTING GROUP 48020. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48020	04	1130	1259	1201	S12	E69	.928	12300	9.7	89	1B				1.50				5 4 4 7
MEUD	04	1129	1245		S12	E68	.922	12300	9.6	76	1N		C	1141	1.55				F
CANR	04	1130	1300D	1200	S13	E68	.922	12300	9.6	90D	1N		V	1200	1.40	3.40			
UPIC	04	1154E	1251	1159	S11	E68	.922	12300	9.6	57D	1B		P	1159	1.49				
CATA	04	1155E	1235D	1205	S11	E68	.922	12300	9.6	40D	1B	3		1205	1.73			(389)	
ARCE	04	1204E	1305D		S13	E73	.951	12300	10.0	61D	1N		C	1207	1.37	3.30			
48020	04	1126E	1230	1130	S18	E71	.940	12300	9.8	64	*1N				.66				2 2 1 7
KHAR	04	1126E	1230D		S21	E70	.934	12300	9.7	64D	2N		P				2.10		CEHL
ATHN	04	1130E	1137D	1130U	S14	E72	.946	12300	9.9	7D	-N	2	V		.66				DE
GRP48022	04	1234	1250	1237	S06	W34	.556	12293	2.0	16	--N				.55				2 2 2 6
MEUD	04	1233	1243	1237	S06	W34	.556	12293	2.0	10	-F		C	1237	.72	.80			E
ARCE	04	1235	1257		S05	W33	.543	12293	2.0	22	-B		C	1247	.37	.40			
GRP48023	04	1346	1412	1355	S06	W35	.571	12293	1.9	26	-N				.79				3 3 2 5
MEUD	04	1345	1402	1353	S06	W34	.556	12293	2.0	17	-F		C	1353	.72	.80			E
BOUL	04	1347	1412D	1356	S05	W34	.557	12293	2.0	25D	-N		V	1356		1.40			
UPIC	04	1351E	1422		S06	W36	.585	12293	1.9	31D	-N		P	1351	.85				
GRP48024	04	1426	1435	1427	S05	W38	.613	12293	1.8	9	--F				.48				3 3 3 4
MEUD	04	1424	1427D	1425	S05	W36	.586	12293	1.9	3D	-F		C	1425	.31	.40			D
CANR	04	1425E	1434		S05	W39	.627	12293	1.7	9D	-F		V		.50				
UPIC	04	1428	1435	1429	S05	W39	.627	12293	1.7	7	-N		P	1429	.63				D
025 PALE	04	1741	1753	1745U	S07	W28	.467	12293	2.6	12	--F	2	C		.19				F 2
	04	1829	1838	NO FLARE PATROL															
026 RAMY	04	1838E	1850D	1840U	S07	W38	.612	12293	1.9	12D	--N	4	V		.31				DE 1
	04	1850	1859	NO FLARE PATROL															
	04	1929	1949	NO FLARE PATROL															
GRP48027	04	2025	2040	2028	S07	W41	.652	12293	1.8	15	--F				.31				2 2 2 3
HUAN	04	2025	2030D	2027	S08	W41	.652	12293	1.8	5D	-F	1	C	2027	.15	.19			D
PALE	04	2029E	2040D	2029U	S06	W40	.640	12293	1.9	11D	-N	2	V		.46				F H
028 PALE	04	2129	2135	2131	S05	W37	.600	12293	2.1	6	--N	2	C		.19				F 3
GRP48029	04	2201	2225	2206	S08	W42	.665	12293	1.8	24	-B				1.13				3 3 3 3
PALE	04	2201	2216D	2206	S07	W42	.665	12293	1.8	17D	-B	2	C		.81				H
RAMY	04	2202E	2211D	2205	S07	W40	.639	12293	1.9	9D	-B	2	V		.72				DE
VORO	04	2204E	2225		S09	W44	.690	12293	1.6	21D	1B		C	2206	1.85	2.51		89	DHJ
030 VORO	04	2238	2250	2242	S08	W42	.665	12293	1.8	12	--B		C	2242	.28	.35		64	DH 3
	05	0201	0212	NO FLARE PATROL															
GRP48033	05	0513	0522	0517	S13	E47	.728	12300	8.7	9	--N				.35				3 3 3 5
ATHN	05	0513	0520	0516	S13	E47	.728	12300	8.7	7	-F	2	C		.50				F
TEHR	05	0517E	0525	0517U	S12	E47	.728	12300	8.7	8D	-N	2	V		.15				DE
MANI	05	0517E	0520	0517U	S13	E48	.740	12300	8.8	3D	-N	2		0517	.41	.62			
GRP48037	05	1702	1710	1705	S16	E42	.672	12300	8.9	8	--F				.30				2 2 2 3
RAMY	05	1701	1710	1704	S15	E42	.670	12300	8.9	9	-F	3	C		.28				DE
MCMA	05	1703	1709	1705	S16	E42	.672	12300	8.9	6	-N		C	1705	.31	.40			D
038 MCMA	05	1753	1805	1756	N15	W06	.377	12298	5.3	12	--F		C	1756	.36	.50			E 3

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
					APPROX.														
	DATE 1973 APR	START	END	MAX. PHASE	LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP48039	05	1823	1833	1824	N15	W06	.377	12298	5.3	10	--F				.39				2 2 2 3
RAMY	05	1822	1830	1823	N14	W06	.361	12298	5.3	8	-F	3	C		.37				DE
MCMA	05	1823	1835	1825	N15	W06	.377	12298	5.3	12	-F		C	1825	.41	.50			E
GRP48040	05	1945	2202	2028	N16	W12	.427	12298	4.9	137	-N				.92				2 2 2 2
MCMA	05	1945	2202D		N17	W12	.441	12298	4.9	137D	-N		C	2032	1.03	1.10			FL
RAMY	05	2028E	2033E	2028E	N15	W11	.406	12298	5.0	5D	-N	2			.81				U
GRP48041	06	0434	0444	0437	S12	E65	.901	12306	11.1	10	--N				.46				2 2 2 3
MANI	06	0433	0444	0436	S12	E64	.894	12306	11.0	11	-N	2		0436	.72	1.40			
TEHR	06	0434	0444	0438	S12	E65	.901	12306	11.1	10	-N	2	C		.19				DE
GRP48042	06	0458	0511	0502	S14	E37	.604	12300	9.0	13	--F				.27				2 2 2 4
TEHR	06	0458	0507	0459	S13	E35	.575	12300	8.8	9	-N	1	C		.12				DE
MANI	06	0458	0515	0505	S14	E39	.631	12300	9.1	17	-F	2		0505	.41	.54			
GRP48044	06	0805	0822	0808	S06	W59	.854	12293	1.9	17	-N				.59				3 3 3 8
ARCE	06	0804	0820	0805	S06	W60	.863	12293	1.8	16	-B		C	0805	.60	1.20			
MANI	06	0805	0820	0809	S05	W58	.845	12293	2.0	15	-F	2		0809	.31	.54			
CATA	06	0818E	0825	0810	S08	W58	.844	12293	2.0	15D	-B	3		0810	.87	1.62		(204)	
GRP48048	06	1547	1606	1551	S08	W63	.887	12293	1.9	19	-N				.61				4 4 4 5
CAPS	06	1545	1605		S08	W62	.879	12293	2.0	20	-B	3	V	1552	.58	1.10		(228)	C
MCMA	06	1545	1605	1550	S08	W64	.895	12293	1.9	20	-F		C	1550	.31	.70			E
CATA	06	1550	1605	1550	S08	W63	.887	12293	1.9	15	-F	3		1550	.87	1.88		(145)	
RAMY	06	1552E	1610D	1554U	S06	W64	.896	12293	1.9	18D	-N	3	V		.74				DE
GRP48043	06	1629	1718	1638	S08	E29	.482	12300	8.9	49	--N				.64				2 2 2 4
MCMA	06	1629	1723D	1639	S09	E30	.498	12300	8.9	54D	-N		C	1639	.72	.80			E
RAMY	06	1636E	1712	1637U	S07	E27	.451	12300	8.7	36D	-N	3	V		.56				DE
GRP48050	06	1724	1816	1731	S09	E27	.452	12300	8.8	52	--F				1.07				3 3 3 4
MCMA	06	1724	1734D		S09	E27	.452	12300	8.8	10D	-N		C	1730	1.03	1.10			E
RAMY	06	1725E	1817	1728U	S08	E25	.420	12300	8.6	52D	-F	3	V		.37				DE
PALE	06	1727E	1815	1734U	S10	E29	.484	12300	8.9	48D	-F	2	C		1.80				F
GRP48052	06	1757	1805	1800	S18	W64	.894	12293	1.9	8	-N				.80				2 1 1 3
CANR	06	1757	1805D	1800	S18	W64	.894	12293	1.9	8D	-N		V	1800	.80	1.60			
PALE	06	1759E	1814	1802	S07	W64	.895	12293	1.9	15D	1N	3	C		1.08				F H
053 RAMY	06	1956	2012	2000	S13	E35	.575	12300	9.5	16	--F	3	V		.21				DE 1
	06	2036	2100	NO FLARE PATROL															
	06	2138	2222	NO FLARE PATROL															
054 MANI	06	2342E	2353	2344U	S08	E25	.420	12300	8.9	11D	--F	1		2344	.41	.45			2
GRP48055	07	0124	0132	0127	S07	W72	.948	12293	1.7	8	--F				.67				2 2 2 5
PALE	07	0124	0130	0126	S07	W73	.953	12293	1.6	6	-F	1	C		.72				
MANI	07	0127E	0133	0127U	S07	W71	.942	12293	1.7	6D	-N	1		0127	.62	1.34			
	07	0308	0309	NO FLARE PATROL															
	07	0527	0554	NO FLARE PATROL															
GRP48058	07	1427	1440	1428	N18	W34	.661	12298	5.1	13	--F				.64				2 2 2 5
CATA	07	1425	1445	1425	N18	W34	.661	12298	5.1	20	-N	3		1425	.87	1.15		(162)	
MEUD	07	1428	1435	1430	N18	W34	.661	12298	5.1	7	-F		C	1430	.41	.50			D
GRP48059	07	1721	1730	1724	S11	E46	.716	12306	11.2	9	--F				.56				2 2 2 3
MEUD	07	1721	1726D		S12	E46	.716	12306	11.2	5D	-F		C	1724	.41	.60			
CANR	07	1721	1730	1724	S09	E45	.703	12306	11.1	9	-N		V		.70				
061 HUAN	07	1914E	1919D		S10	E45	.703	12306	11.2	5D	--F	1	P						2
	07	1943	2009	NO FLARE PATROL															
	07	2013	2106	NO FLARE PATROL															
	07	2129	2225	NO FLARE PATROL															
GRP48063	07	2255	2301	2258	S10	E43	.678	12306	11.2	6	1N				2.01				2 2 2 4
MANI	07	2253	2259D	2256	S08	E42	.665	12306	11.1	6D	1N	2		2256	1.75	2.36			
MITK	07	2256	2301D	2259	S12	E43	.680	12306	11.2	5D	1N		P	2259	2.27	3.10			E
GRP48064	08	0208	0239	0218	S08	E38	.612	12306	10.9	31	-N				.79				2 2 2 3
PALE	08	0208	0237	0216	S09	E38	.612	12306	10.9	29	-N	2	C		.55				DE
MANI	08	0220E	0240	0220U	S07	E37	.598	12306	10.9	20D	-N	2		0220	1.03	1.29			

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	
GRP48065	08	0255	0318	0306	S06	W80	.983	12293	2.1	23	--F				.57				3 2 2 4
KODA	08	0255E	0404D		S07	W75	.963	12293	2.5	69D	2N			0359	1.93				E
MANI	08	0302	0315	0304	S08	W78	.976	12293	2.3	13	-F	2		0304	.62	1.53			
PALE	08	0306E	0321	0308U	S03	W82	.990	12293	2.0	15D	-F	2	V		.52				F
GRP48067	08	0304	0327	0312	S10	E40	.640	12306	11.1	23	-N				1.17				3 3 3 4
MANI	08	0258	0322	0312	S09	E40	.639	12306	11.1	24	-N	2		0312	1.55	2.02			
PALE	08	0259	0307	0302	S12	E40	.641	12306	11.1	8	-F	2	C		.45				F
PALE	08	0300E	0306	0302U	S13	E40	.643	12306	11.1	6D	-F	2	V		.36				F
PALE	08	0309	0339	0312	S13	E40	.643	12306	11.1	30	-N	2	V		.93				DE
PALE	08	0309	0339	0331	S13	E40	.643	12306	11.1	30	-F	2	V		.67				DE
MITK	08	0315E	0321		S09	E40	.639	12306	11.1	6D	-N		C	0315	1.03	1.30			E
GRP48069	08	0350	0358	0352	S09	E03	.072	12300	8.4	8	--N				.50				3 3 3 4
MITK	08	0350	0357	0352	S09	E02	.061	12300	8.3	7	-N		C	0352	.52	.50			D
PALE	08	0350E	0356	0351U	S09	E04	.085	12300	8.5	6D	-F	2	V		.36				F
MANI	08	0350	0402	0352	S08	E04	.077	12300	8.5	12	-N	2		0352	.62	.62			
GRP4807-	08	0415	0428	0419	S09	E38	.612	12306	11.0	13	-F				.59				2 2 2 7
MANI	08	0415	0423D	0418	S08	E37	.598	12306	11.0	8D	-N	2		0418	.72	.90			
PALE	08	0418E	0428	0419U	S10	E38	.613	12306	11.0	10D	-F	2	V		.46				F
4807J	08	0416	0506	0437	S11	E37	.600	12306	11.0	50	*1N				2.27				2 1 1 7
MITK	08	0416	0505	0437	S11	E37	.600	12306	11.0	49	1N		C	0437	2.27	2.90			E
MANI	08	0455E	0506	0455U	S08	E38	.612	12306	11.1	11D	-N	1		0455	.72	.92			
GRP48071	08	0517	0538	0522	S09	E35	.571	12306	10.8	21	-N				.82				4 4 4 5
MITK	08	0515	0540	0520	S10	E35	.571	12306	10.8	25	-N		C	0520	.83	1.00			E
MANI	08	0517E	0539	0521	S07	E38	.612	12306	11.1	22D	-N	1		0521	1.24	1.57			
ATHN	08	0519	0534	0522	S09	E35	.571	12306	10.8	15	-N	3	V		.66				F
TEHR	08	0525E	0526D	0525U	S08	E32	.527	12306	10.6	1D	-N	2	C		.55				F
GRP48072	08	0529	0550	0537	S08	E02	.048	12300	8.4	21	--N				.42				3 3 3 5
MITK	08	0529	0551	0538	S09	E01	.053	12300	8.3	22	-N		C	0538	.52	.50			D
ATHN	08	0532E	0549	0534	S08	E02	.048	12300	8.4	17D	-N	2	C		.33				DE
MANI	08	0537E	0546D	0539	S08	E02	.048	12300	8.4	9D	-N	1		0539	.41	.41			
GRP48076	08	0700	0724	0715	S08	E35	.570	12306	10.9	24	-N				1.55				3 2 2 4
BUCA	08	0700E	0726D		S08	E35	.570	12306	10.9	26D	-F		C	0702	1.10	1.30			
CAPS	08	0700	0721		S08	E35	.570	12306	10.9	21	1B	2	S	0702	2.00	2.40		(225)	
MANI	08	0713E	0724	0715	S05	E36	.586	12306	11.0	11D	-N	1		0715	.52	.64			
8 STATIONS REPORTING GROUP 48078. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48078	08	0853	0913	0858	S09	E34	.556	12306	10.9	20	-N				.97				6 6 5 9
ISTA	08	0800E	0910		S08	E34	.556	12306	10.9	70D	1N								
ATHN	08	0846	0915	0857	S10	E33	.543	12306	10.8	29	-N	3	V		.66				DE
KHAR	08	0855E	0920D		S11	E33	.544	12306	10.8	25D	1N		P	0900	2.68	3.10	2.40		BDH
MANI	08	0857E	0911	0857	S07	E35	.570	12306	11.0	14D	-N	1		0857	.83	1.81			
CANR	08	0900	0906	0900	S07	E34	.556	12306	10.9	6	-B		V		.20	.30			
CAPS	08	0901	0913		S08	E35	.570	12306	11.0	12	-N	2	V	0903	.50	.60		(188)	
48078	08	0846	0901	0849	S09	E34	.556	12306	10.9	15	*-N				.49				4 4 4 9
ARCE	08	0843E	0846D		S09	E32	.528	12306	10.8	3D	-N		P	0846	.46	.50			
ATHN	08	0846	0915	0849	S10	E33	.543	12306	10.8	29	-N	3	V		.50				DE
CANR	08	0848E	0854		S07	E34	.556	12306	10.9	6D	-N		V	0848	.60	.70			
CAPS	08	0848	0854		S08	E35	.570	12306	11.0	6	-N	2	V	0848	.40	.50		(169)	
48078	08	0810	0915	0815	S07	E35	.570	12306	11.0	65	*-N				1.07				2 2 2 6
CATA	08	0810	0915	0815	S08	E35	.570	12306	11.0	65	1B	3		0815	1.73	2.11		(214)	Z
MANI	08	0814E	0817D	0814	S06	E35	.571	12306	11.0	3D	-F	1		0814	.41	.50			
GRP48081	08	1101	1116	1102	S08	E34	.556	12306	11.0	15	--B				.29				3 3 3 9
RAMY	08	1059E	1117	1101U	S10	E32	.529	12306	10.9	18D	-N	3	V		.46				F
CANR	08	1101	1108	1102	S07	E34	.556	12306	11.0	7	-B		V	1102	.10	.20			
CAPS	08	1102	1123		S08	E35	.570	12306	11.1	21	-B	3	V	1105	.30	.30		(300)	
GRP48085	08	1245	1325	1252	S09	E33	.542	12306	11.0	40	1N				2.19				2 2 2 7
CATA	08	1245	1325	1255	S09	E33	.542	12306	11.0	40	1B	3		1255	2.31	2.75		(214)	Y
KIEV	08	1245	1248D	1248	S06	E33	.542	12306	11.0	3D	1F		P	1248	2.06	2.40		50	DI
GRP48089	08	1415	1505	1426	S08	E34	.556	12306	11.1	50	-N				.89				4 3 3 4
CAPS	08	1415E	1442D		S08	E34	.556	12306	11.1	27D	-B	2	V	1418	.80	1.00		(210)	
MCMA	08	1415	1500	1422	S07	E33	.542	12306	11.1	45	-N		C	1422	1.03	1.10			EK
RAMY	08	1421E	1510	1422U	S09	E34	.556	12306	11.1	49D	-N	3	V		.84				DE
ATHN	08	1433E	1433D	1433D	S08	E33	.542	12306	11.1		-N	2	V		2.02				U F

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
48089	08	1415	1502	1446	S07	E32	.527	12306	11.0	47	*-N				.67				3 3 2 5
MCMA	08	1415	1500	1448	S07	E33	.542	12306	11.1	45	-N		C	1422	1.03	1.10			EK
BOUL	08	1442E	1500D	1443U	S05	E29	.483	12306	10.8	18D	-N		V						
CAPS	08	1447E	1505D		S09	E33	.542	12306	11.1	18D	-B	3	V	1448	.30	.30			
GRP48090	08	1514	1531	1520	S07	W03	.054	12300	8.4	17	--F				.21				2 2 1 6
MCMA	08	1514	1527	1517	S08	W04	.077	12300	8.3	13	-F		C	1517	.21	.20			E
BOUL	08	1522E	1535D	1523	S05	W02	.040	12300	8.5	13D	-F		V						
GRP48091	08	1733	1750	1737	S08	W04	.077	12300	8.4	17	--N				.39				5 5 4 5
RAMY	08	1727	1746	1729	S08	W06	.109	12300	8.3	19	-N	4	C		.28				DE
MCMA	08	1730	1750	1738	S08	W05	.092	12300	8.4	20	-N		C	1738	.36	.40			E
BOUL	08	1736	1800D	1739	S05	W03	.056	12300	8.5	24D	-N		V						
HUAN	08	1737	1747	1741U	S09	W04	.085	12300	8.4	10	-N	1	C	1741	.31	.31			
PALE	08	1737	1749	1739	S09	W03	.072	12300	8.5	12.	-N	4	V		.62				DE
094 PALE	08	2142E	2148		S02	W90	1.000	12293	2.2	6D	-N	1	C						2
096 PALE	08	2222E	2228		S02	W90	1.000	12293	2.2	6D	-N	1	C						5
GRP48097	08	2227	2241	2229	S08	W07	.125	12300	8.4	14	--N				.60				3 3 3 4
PALE	08	2227	2241	2229	S08	W07	.125	12300	8.4	14	-N	2	C		.45				
MANI	08	2227E	2247	2229U	S09	W05	.100	12300	8.6	20D	-N	1		2229	.41	.42			
VORO	08	2228	2234	2229	S08	W09	.159	12300	8.3	6	-B		C	2229	.93	.92		87	EJ
GRP48098	08	2241	2248	2242	S09	E28	.468	12306	11.0	7	--N				.74				3 3 3 3
MANI	08	2240E	2250	2241	S10	E29	.484	12306	11.1	10D	-N	1		2241	.31	.35			
VORO	08	2241	2247	2243	S08	E26	.436	12306	10.9	6	-B		C	2243	1.29	1.41		77	DL
PALE	08	2243E	2247D	2243U	S10	E28	.469	12306	11.0	4D	-N	2	V		.62				F
GRP48100	09	0032E	0055	0038	S09	W07	.131	12300	8.5	23	--N				.39				2 2 2 4
MANI	09	0023E	0040	0025	S10	W06	.124	12300	8.6	17D	-N	1		0025	.31	.31			
MANI	09	0032E	0045D	0035U	S09	W07	.131	12300	8.5	13D	-N	1		0035	.41	.42			
PALE	09	0037E	0055D	0040	S09	W08	.147	12300	8.4	18D	-N	2	C		.36				F
GRP48103	09	0204E	0220	0211	S09	W09	.163	12300	8.4	16	--N				.30				2 2 2 3
MANI	09	0204E	0220	0207U	S10	W08	.154	12300	8.5	16D	-N	1		0207	.41	.42			
PALE	09	0215E	0219	0215U	S08	W10	.176	12300	8.3	4D	-N	2	C		.19				
GRP48105	09	0446	0505	0449	S08	E28	.467	12306	11.3	19	--N				.59				2 2 2 4
MANI	09	0445E	0505	0449U	S08	E27	.452	12306	11.2	20D	-N	1		0449	.52	.58			
ATHN	09	0446	0505	0449	S08	E28	.467	12306	11.3	19	-N	2	C		.66				DE
108 MANI	09	0616E	0630D	0618U	S09	W09	.163	12300	8.6	14D	--N	1		0618	.41	.42			2
GRP48109	09	0754	0828	0803	S09	W11	.196	12300	8.5	34	--N				.84				3 3 2 5
ISTA	09	0754	0825		S09	W12	.212	12300	8.4	31	-F								E
MANI	09	0757E	0815	0800U	S09	W10	.179	12300	8.6	18D	-N	1		0800	.52	.53			
CATA	09	0800E	0830	0805	S10	W12	.217	12300	8.4	30D	-N	3		0805	1.16	1.18		(166)	
MANI	09	0822E	0830	0825U	S09	W10	.179	12300	8.6	8D	-N	1		0825	.41	.42			
GRP48110	09	0854	0913	0859	S13	E10	.209	12300	10.1	19	--F				1.05				4 4 3 5
ISTA	09	0854	0905		S12	E09	.185	12300	10.0	11	-F								D
ATHN	09	0855E	0910	0857	S13	E09	.195	12300	10.0	15D	-N	3	V		.33				DE
MANI	09	0858E	0910	0900U	S13	E11	.223	12300	10.2	12D	-F	1		0900	.41	.42			
KHAR	09	0905E	0927D		S12	E10	.200	12300	10.1	22D	1F		P	0913	2.42	2.40	1.50		BE
GRP48111	09	0910	0934	(0925)	S10	E25	.424	12306	11.3	24	--F				1.13				2 2 1 4
ISTA	09	0910	0934		S09	E25	.422	12306	11.3	24	-F								E
KHAR	09	0920E	0932D		S11	E24	.410	12306	11.2	12D	-F		P	0925	1.13	1.20	1.50		D
GRP48112	09	1100	1116	1103	S10	E18	.313	12306	10.8	16	-N				1.44				3 3 3 3
KHAR	09	1100E	1105D		S10	E18	.313	12306	10.8	5D	1F		P	1103	2.84	3.00	1.50		
RAMY	09	1100	1114	1103	S10	E18	.313	12306	10.8	14	-N	3	V		.83				DE
ATHN	09	1100E	1117	1102	S10	E18	.313	12306	10.8	17D	-N	3	V		.66				DE
GRP48113	09	1222	1232	1224	S10	E18	.313	12306	10.9	10	--N				.83				2 2 2 2
ATHN	09	1222E	1230	1223	S10	E17	.297	12306	10.8	8D	-N	3	V		.83				DE
RAMY	09	1222E	1233	1224	S10	E18	.313	12306	10.9	11D	-N	4	V		.83				DE
GRP48115	09	1542	1556	1544	S09	E16	.278	12306	10.9	14	--N				.44				4 4 3 4
RAMY	09	1541	1553	1543	S09	E17	.294	12306	10.9	12	-N	4	V		.52				DE
ATHN	09	1543	1556	1545	S09	E15	.261	12306	10.8	13	-N	2	V		.50				DE
BOUL	09	1544E	1600	1545	S08	E17	.292	12306	10.9	16D	-N		V						
HUAN	09	1545E	1545D		S09	E15	.261	12306	10.8		-N	1	P	1545	.31	.32			
116 RAMY	09	1621	1632	1624	S09	E17	.294	12306	11.0	11	--N	3	V		.72				DE 1
117 HUAN	09	1702	1712	1704	S09	E14	.245	12306	10.8	10	--F	1	C						2

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
GRP48118	09	1743E	1804	1746	S08	E20	.341	12306	11.2	21	-N				1.08				2 2 2 3
BOUL	09	1743E	1804	1746	S07	E20	.340	12306	11.2	21D	-N		V	1747	1.75	1.80			
HUAN	09	1751E	1753D		S08	E19	.325	12306	11.2	2D	-N	1	P	1751	.41	.44			E
	09	1804	1813	NO FLARE PATROL															
	09	1840	1853	NO FLARE PATROL															
	09	1907	1923	NO FLARE PATROL															
	09	1930	2003	NO FLARE PATROL															
GRP48119	09	2028	2047	2032	S09	E13	.229	12306	10.8	19	--N				.44				2 2 2 3
PALE	09	2027	2044	2029	S10	E12	.217	12306	10.8	17	-N	3	C		.27				F H
BOUL	09	2029	2049	2030	S08	E14	.242	12306	10.9	20	-N		V	2035	.60	.60			
BOUL	09	2029	2049	2037	S06	E14	.242	12306	10.9	20	-N		V	2035	.60	.60			
BOUL	09	2029	2049	2035	S08	E14	.242	12306	10.9	20	-N		V	2035	.60	.60			
120 PALE	09	2045	2053	2047	S10	W18	.313	12300	8.5	8	--F	2	C		.45				F 2
121 PALE	09	2131	2136	2133	S10	E12	.217	12306	10.8	5	--F	2	C		.19				H 1
	09	2158	2216	NO FLARE PATROL															
GRP48122	09	2251	2259	2253	S08	E14	.242	12306	11.0	8	-N				.98				3 3 3 3
PALE	09	2251	2257	2253	S08	E17	.292	12306	11.2	6	-N	3	V		.93				F
BOUL	09	2251	2304	2252	S08	E15	.259	12306	11.1	13	-N		V	2300	1.40	1.40			
MANI	09	2252E	2257	2253	S09	E11	.196	12306	10.8	5D	-N	1		2253	.62	.63			
GRP48123	09	2311	2319	2314	S09	E12	.212	12306	10.9	8	--N				.16				2 2 2 2
PALE	09	2311	2318	2312	S09	E13	.229	12306	10.9	7	-N	3	V		.21				
MANI	09	2315E	2320	2315U	S09	E11	.196	12306	10.8	5D	-N	1		2315	.10	.10			
GRP48124	09	2325E	2331	2326	S09	E12	.212	12306	10.9	6	--N				.34				2 2 2 2
PALE	09	2325E	2330	2326U	S09	E13	.229	12306	11.0	5D	-N	3	V		.26				H
MANI	09	2325E	2332	2326	S09	E11	.196	12306	10.8	7D	-N	1		2326	.41	.42			
GRP48125	09	2335E	2337	2336	S09	W17	.294	12300	8.7	2	--F				.29				2 2 2 2
MANI	09	2335E	2337	2335U	S08	W17	.292	12300	8.7	2D	-F	1		2335	.31	.32			
PALE	09	2335E	2337	2336U	S09	W16	.278	12300	8.8	2D	-F	2	V		.26				
GRP48128	10	0026	0148		S08	E14	.243	12306	11.1	82	--B				.78				2 2 2 3
MANI	10	0026E	0035D	0028	S09	E16	.278	12306	11.2	9D	-N	1		0028	.83	.86			
PALE	10	0030	0159D	0045	S08	E14	.243	12306	11.1	89D	-N	2	C		.81				F
PALE	10	0031E	0137	0054	S08	E16	.276	12306	11.2	66D	-B	3	V		.72				DE
MANI	10	0107E	0119D	0107	S07	E11	.190	12306	10.9	12D	-F	2		0107	1.03	1.05			
3 STATIONS REPORTING GROUP 48129. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48129	10	0143	0215	0209	S10	E09	.170	12306	10.7	32	-B				2.65				2 2 2 3
KODA	10	0143E	0215D		S07	E10	.173	12306	10.8	32D	1B		P	0212	4.26	4.30			E
MANI	10	0206E	0209D	0209U	S12	E07	.159	12306	10.6	1D	-N	2		0209	1.03	1.04			
48129	10	0152	0200	0156	S08	E12	.209	12306	11.0	8	*-N				1.14				2 2 2 3
MANI	10	0152	0155D	0153	S08	E11	.193	12306	10.9	3D	-N	2		0153	1.34	1.36			
PALE	10	0156E	0200D	0158U	S08	E12	.209	12306	11.0	4D	-N	3	V		.93				DE
GRP48131	10	0735	0813	0749	S09	W26	.438	12300	8.4	38	--N				.72				4 4 3 7
ISTA	10	0732	0815		S09	W26	.438	12300	8.4	43	-N								
MEUD	10	0738	0806D	0750	S08	W25	.421	12300	8.4	28D	-N		C	0750	.72	.80			E
MANI	10	0739E	0810	0750	S09	W27	.453	12300	8.3	31D	-N	2		0750	.62	.69			
ATHN	10	0748E	0805D	0748U	S08	W27	.452	12300	8.3	17D	-N	1	V		.83				F
GRP48132	10	1000	1026	1003	S08	E12	.209	12306	11.3	26	-B				1.16				2 2 1 3
ATHN	10	0959	1029	1003	S08	E11	.193	12306	11.2	30	-B	3	C		1.16				U F
ISTA	10	1000	1023		S07	E12	.207	12306	11.3	23	-N								
GRP48133	10	1047	1123	1054	S07	E10	.173	12306	11.2	36	--N				.64				3 3 3 4
CAPS	10	1038	1130		S06	E09	.156	12306	11.1	52	-F	2	S	1054	.60	.60		(155)	
RAMY	10	1046E	1110D	1049U	S08	E10	.176	12306	11.2	24D	-N	3	V		.83				DE
ATHN	10	1057E	1110	1059	S08	E11	.193	12306	11.3	13D	-N	2	V		.50				DE
ATHN	10	1057	1115	1100	S08	E10	.176	12306	11.2	18	-N	2	C		.33				DE
6 STATIONS REPORTING GROUP 48134. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48134	10	1223	1302	1227	S08	E09	.159	12306	11.2	39	-B				1.33				3 2 2 4
RAMY	10	1223E	1300	1226	S08	E09	.159	12306	11.2	37D	-B	4	V		1.34				F S
ATHN	10	1225E	1303D	1227	S08	E09	.159	12306	11.2	38D	-B	3	V		1.32				DE
KIEV	10	1228	1255	1240	S06	E10	.173	12306	11.3	27	-N		P	1240	1.03	1.00		60	DI

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE		OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE		TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	
48134	10	1312E	1327	1315	S08	E09	.159	12306	11.2	15	*-B					1.08				2 2 2 3
RAMY	10	1312E	1327	1315	S08	E09	.159	12306	11.2	15D	-B	4	V			1.03				F
MEUD	10	1315E	1318D		S08	E09	.159	12306	11.2	3D	-N		C		1315	1.13	1.10			E
48134	10	1300	1423	1412	S09	E09	.164	12306	11.2	83	*-B					.80				2 1 1 6
CAPS	10	1300	1423		S09	E09	.164	12306	11.2	83	-B	1	S		1300	.80	.80			
BOUL	10	1410	1418	1412	S06	E05	.087	12306	11.0	8	-N		V		1412					
GRP48135	10	1312E	1352	1315	S12	W20	.352	12300	9.1	40	1N					5.50				3 3 3 4
RAMY	10	1312E	1335D	1315U	S12	W19	.337	12300	9.1	23D	1F	4	V			3.09				U
MEUD	10	1315E	1352D		S12	W20	.352	12300	9.1	37D	2N		C		1336	8.25	8.60			U
MCMA	10	1340E	1342D		S13	W21	.372	12300	9.0	2D	1N		P		1340	5.16	5.40			BU
48135	10	1300	1520	1353	S13	W21	.372	12300	9.0	140	*2F					7.10				2 2 2 4
CAPS	10	1300	1520	1355	S14	W20	.362	12300	9.0	140	2N	1	P		1323	8.00	9.00		(228)	IU
KIEV	10	1330	1408	1350	S11	W21	.364	12300	9.0	38	2F		P		1350	6.19	6.70		50	EI
GRP48136	10	1706	1725	1706	S13	E01	.123	12306	10.8	19	--F					.34				2 2 2 2
RAMY	10	1704	1725	1706	S13	E01	.123	12306	10.8	21	-F	4	V			.52				DE
HUAN	10	1707	1707D		S13	E01	.123	12306	10.8		-F	1	P		1707	.15	.16			D
GRP48137	10	1905	1931	1913	S06	E06	.104	12306	11.2	26	--B					.92				2 2 2 2
RAMY	10	1905	1934D	1910	S08	E06	.109	12306	11.2	29D	-B	3	V			.93				F
PALE	10	1916E	1927	1916U	S03	E06	.117	12306	11.3	11D	-B	3	C			.91				F
	10	2034	2107	NO FLARE PATROL																
	10	2121	2217	NO FLARE PATROL																
138 RAMY	10	2123	2135	2126	S11	E06	.135	12306	11.3	12	--F	3	V			.62				DE 2
138 RAMY	10	2134	2144D	2135	S06	E02	.035	12306	11.0	10D	--N	2	V			.26				DE 1
GRP48140	11	0136	0155	0140	S08	W37	.599	12300	8.3	19	--F					.67				2 2 2 3
MANI	11	0134	0158	0140	S07	W37	.599	12300	8.3	16	-N	2			0140	.62	.77			
PALE	11	0137	0159	0139	S09	W36	.585	12300	8.4	22	-F	3	V			.72				DE
GRP48141	11	0155	0207	0158	S08	W05	.094	12306	10.7	12	--N					.74				2 2 2 4
PALE	11	0155	0207	0158	S08	W05	.094	12306	10.7	12	-N	3	C			.55				F
MANI	11	0155	0158D	0158	S07	W05	.089	12306	10.7	3D	-N	2			0158	.93	.93			
GRP48142	11	0227	0248	0234	S07	W04	.072	12306	10.8	21	--N					.95				2 2 2 3
PALE	11	0226	0248	0234	S07	W05	.089	12306	10.7	22	-N	3	C			.55				F
MITK	11	0228	0246D	0234	S07	W03	.055	12306	10.9	18D	-N		C		0234	1.34	1.30			E
GRP48143	11	0330	0341	0332	S07	W01	.025	12306	11.1	11	--N					.43				2 2 2 3
MANI	11	0327	0345	0330	S07	W01	.025	12306	11.1	18	-N	2			0330	.41	.41			
PALE	11	0332	0337	0334	S06	E00	.001	12306	11.1	5	-N	3	C			.45				F
GRP48144	11	0341	0352	0344	S08	W06	.110	12306	10.7	11	--F					.62				2 2 2 3
PALE	11	0340E	0348D	0342U	S07	W04	.072	12306	10.9	8D	-F	3	V			.62				F
MANI	11	0341	0352	0346U	S08	W07	.126	12306	10.6	11	-F	2			0346	.62	.62			
GRP48146	11	0623E	0635	0624	S08	W03	.063	12306	11.0	12	--F					.37				2 2 2 5
TEHR	11	0623E	0635	0623U	S10	W01	.073	12306	11.2	12D	-F	4	V			.33				F
MANI	11	0624E	0626D	0624U	S06	W05	.087	12306	10.9	2D	-F	2			0624	.41	.41			
GRP48147	11	0759	0809	0801	S11	W04	.112	12306	11.0	10	--B					.40				2 2 2 4
ATHN	11	0757	0808	0801	S11	W04	.112	12306	11.0	11	-N	2	C			.50				DE
CATA	11	0800	0810	0800	S11	W04	.112	12306	11.0	10	-B	1			0800	.29	.29		(263)	
GRP48148	11	0921	0935	0925	S08	W07	.126	12306	10.9	14	--N					.92				5 5 5 5
CAPS	11	0920	0935		S09	W04	.087	12306	11.1	15	-B	2	V		0923	.80	.80		(228)	C
ATHN	11	0920	0933	0924	S08	W10	.176	12306	10.6	13	-N	3	C			.83				F H
TEHR	11	0920	0936	0925	S07	W09	.157	12306	10.7	16	-N	3	C			.50				DE
MANI	11	0922	0935	0926	S07	W07	.123	12306	10.9	13	-N	1			0926	1.03	1.04			
CATA	11	0925E	1015	0925	S07	W07	.123	12306	10.9	50D	-N	3			0925	1.44	1.46		(170)	
GRP48149	11	0949	1006	0954	S08	W08	.143	12306	10.8	17	--N					.36				3 3 3 4
ATHN	11	0948	1001	0950	S09	W09	.164	12306	10.7	13	-N	3	C			.50				F
CAPS	11	0950	1010		S08	W06	.110	12306	11.0	20	-B	2	V		0956	.40	.40		(288)	C
TEHR	11	0957E	1007	0957U	S07	W09	.157	12306	10.7	10D	-N	3	C			.17				DE
GRP48151	11	1300	1330	1303	S08	W07	.126	12306	11.0	30	--N					.30				2 2 2 3
CATA	11	1300	1330	1300	S08	W06	.110	12306	11.1	30	-N	3			1300	.29	.29		(178)	
MCMA	11	1300	1330	1306	S07	W07	.123	12306	11.0	30	-N		C		1306	.31	.30			E

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP48152	11	1401	1428	1408	S10	W05	.112	12306	11.2	27	1B				2.12				3 3 3 5
CATA	11	1400	1435	1410	S11	W07	.149	12306	11.1	35	-B	3		1410	1.73	1.75		(316)	
MCMA	11	1400	1440	1405	S12	W07	.160	12306	11.1	40	1B		C	1405	2.32	2.30			FV
CAPS	11	1402	1408		S08	W01	.040	12306	11.5	6	1B	2	S	1406	2.30	2.30		(340)	C
GRP48154	11	1530	1537	1531	S08	W13	.226	12306	10.7	7	--F				.31				2 2 1 4
MCMA	11	1529	1537	1530	S08	W13	.226	12306	10.7	8	-N		C	1530	.31	.30			E
HUAN	11	1530	1536	1532	S08	W12	.209	12306	10.7	6	-F	1	C						
GRP48155	11	1621	1635	1623	S08	W13	.226	12306	10.7	14	--B				.81				3 3 3 4
CATA	11	1620	1625D	1622	S07	W12	.207	12306	10.8	5D	-B	3		1622	.87	.88		(316)	
MCMA	11	1620	1635	1623	S08	W13	.226	12306	10.7	15	-B		C	1623	.83	.80			E
HUAN	11	1622	1634	1624	S08	W13	.226	12306	10.7	12	-B	1	C	1624	.72	.74			E
5 STATIONS REPORTING GROUP 48156. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48156	11	1838	2153	1846	S09	W10	.180	12306	11.0	195	1B				2.99				4 4 4 4
MCMA	11	1836	2200D	1845	S08	W10	.176	12306	11.0	204D	1B		C	1845	2.58	2.60			FHKLIV
PALE	11	1838	2203	1849	S10	W10	.186	12306	11.0	205	1B	3	C		3.61				F U
PALE	11	1838	2203	1856	S10	W10	.186	12306	11.0	205	1B	3	C		2.71				F U
RAMY	11	1840	2136	1844	S08	W11	.193	12306	11.0	176	1B	4	V		2.89				F
HUAN	11	1846E	1908D		S09	W08	.148	12306	11.2	22D	1B	1	P	1850	2.89	2.91			E
HUAN	11	1955E	2125D		S10	W11	.202	12306	11.0	90D	1N	1	P	2044	4.13	4.16			E
48156	11	2017	2040	2024	S12	W07	.160	12306	11.3	23	*1B				1.44				2 2 1 4
BOUL	11	2017E	2050D	2026	S10	W07	.140	12306	11.3	33D	2B		V						DE
RAMY	11	2020E	2030	2022U	S14	W07	.184	12306	11.3	10D	-N	3	V		1.44				
48156	11	2149	2327	2211	S09	W14	.246	12306	10.9	98	*-F				1.96				2 2 2 2
VORO	11	2149	2327		S09	W12	.213	12306	11.0	98	1N		P	2150	3.51	3.53		70	EJL
PALE	11	2206E	2220	2211U	S08	W16	.276	12306	10.7	14D	-F	3	V		.41				
GRP48157	11	2250	2257	2253	S10	W14	.249	12306	10.9	7	--N				.68				2 2 2 3
VORO	11	2250	2255	2252	S11	W12	.223	12306	11.1	5	-B		C	2250	.74	.75		74	DL
PALE	11	2252E	2258	2253U	S08	W15	.259	12306	10.8	6D	-F	3	V		.62				F
GRP48158	11	2304	2325	2309	S08	W15	.259	12306	10.8	21	-N				1.78				2 2 2 3
VORO	11	2303	2324	2312	S08	W14	.243	12306	10.9	21	1N		C	2312	2.89	2.72		68	EL
PALE	11	2304	2326	2306	S08	W16	.276	12306	10.8	22	-N	3	V		.67				DE
GRP48159	12	0003	0025	0010	S08	W13	.226	12306	11.0	22	-N				1.75				2 2 2 4
PALE	12	0002	0028	0010	S08	W13	.226	12306	11.0	26	-N	3	C		.91				F
VORO	12	0004	0021	0009	S08	W13	.226	12306	11.0	17	1N		C	0009	2.59	2.63		66	EL
GRP48160	12	0208	0229	0214	S08	W13	.226	12306	11.1	21	--N				.34				2 2 2 4
MANI	12	0208	0229	0212	S08	W13	.226	12306	11.1	21	-N	2		0212	.31	.32			
PALE	12	0210E	0228	0217	S07	W13	.224	12306	11.1	18D	-F	3	C		.36				DE
PALE	12	0216E	0228	0216U	S08	W12	.210	12306	11.2	12D	-N	3	V		.36				F
GRP48161	12	0216E	0225	0219	S09	W50	.762	12300	8.3	9	--F				.24				2 2 2 4
PALE	12	0216E	0225	0216U	S06	W49	.752	12300	8.4	9D	-F	3	V		.26				F
MANI	12	0217E	0225	0222U	S11	W51	.773	12300	8.3	8D	-F	2		0222	.21	.32			
GRP48162	12	0306	0337	0312	S09	W13	.230	12306	11.2	31	-N				1.24				2 2 2 3
PALE	12	0305	0334	0312U	S09	W12	.213	12306	11.2	29	-N	3	V		1.24				DE
MANI	12	0307	0340	0312	S08	W14	.243	12306	11.1	33	-N	2		0312	1.24	1.27			
GRP48163	12	0400	0412	0404	S08	W14	.243	12306	11.1	12	--N				.73				2 2 2 3
MANI	12	0359	0412	0405U	S07	W15	.258	12306	11.0	13	-N	2		0405	.83	.86			
PALE	12	0401	0412D	0403	S09	W12	.213	12306	11.3	11D	-N	2	V		.62				F
	12	0555	0606	NO FLARE PATROL															
	12	0701	0730	NO FLARE PATROL															
GRP48164	12	1331	1347	1337	S10	W54	.805	12300	8.5	16	--F				.39				2 2 2 3
CAPS	12	1329	1337		S12	W52	.784	12300	8.7	8	-F	1	S	1331	.40	.50		(158)	
RAMY	12	1333	1357	1337	S08	W56	.825	12300	8.4	24	-F	3	C		.37				DE
	12	2200	2207	NO FLARE PATROL															
	12	2209	2210	NO FLARE PATROL															
GRP48166	12	2212	2320	2220	S08	W28	.468	12306	10.8	68	--F				.66				2 2 2 4
MANI	12	2212	2320	2214	S08	W28	.468	12306	10.8	68	-F	1		2214	.41	.47			
PALE	12	2225E	2228D	2225U	S08	W27	.452	12306	10.9	3D	-N	2	C		.91				F
166 MANI	12	2307E	2310D	2310U	S10	W25	.424	12306	11.1	3D	--F	2		2310	.52	.56			2
167 MANI	12	2326E	2359	2338	S09	W26	.438	12306	11.0	33D	--F	2		2338	.41	.46			2

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
168 MANI	13	0029	0042	0031	S08	W25	.421	12306	11.1	13	--N	2		0031	.62	.68			2
169 MANI	13	0118	0140	0122	S08	W26	.437	12306	11.1	22	--N	2		0122	.52	.57			2
170 MANI	13	0129	0137	0131	N14	W78	.984	12304	7.2	8	--N	2		0131	.31	.76			2
171 MANI	13	0150	0204	0157	S08	W26	.437	12306	11.1	14	--F	2		0157	.41	.46			2
172 MANI	13	0214	0231	0219	S08	W26	.437	12306	11.1	17	--N	2		0219	.62	.68			2
GRP48173	13	0510	0534	0516	S08	W30	.498	12306	11.0	24	--N				.73				3 3 3 5
ATHN	13	0509	0539	0521	S09	W29	.484	12306	11.0	30	-N	2	C		1.16				DE
ATHN	13	0509	0539	0513	S09	W29	.484	12306	11.0	30	-N	2	C		.99				DE
MANI	13	0510	0542	0513	S07	W28	.467	12306	11.1	32	-N	2		0513	.83	.94			
TEHR	13	0511	0521	0515	S08	W32	.528	12306	10.8	10	-N	2	V		.21				DE
GRP48175	13	0657E	0721	0717	S09	W39	.626	12306	10.4	24	-N				.84				3 3 3 6
MANI	13	0657E	0807	0720	S10	W41	.653	12306	10.2	70D	-F	2		0720	.83	1.10			
MANI	13	0657E	0724	0658U	S05	W41	.654	12306	10.2	27D	-F	2		0658	.41	.55			
CATA	13	0700E	0720D	0715	S12	W39	.629	12306	10.4	20D	-N	1		0715	1.44	1.86		(178)	
TEHR	13	0710E	0720	0715U	S08	W37	.599	12306	10.5	10D	-N	2	V		.26				DE
GRP48176	13	0856	0910	0859	S11	W32	.531	12306	11.0	14	--F				.49				5 5 5 8
ARCE	13	0855	0910	0900	S11	W31	.516	12306	11.0	15	-F		C	0900	.57	.70			
MONT	13	0856	0900D	0858	S12	W31	.518	12306	11.0	4D	-N		C	0858	.41				E
MANI	13	0857	0910D	0900	S10	W32	.529	12306	11.0	13D	-F	2		0900	.31	.37			
ATHN	13	0857E	0912	0859	S12	W33	.547	12306	10.9	15D	-F	3	V		.66				F
TEHR	13	0859E	0908	0859U	S11	W31	.516	12306	11.0	9D	-N	4	V		.50				F
GRP48179	13	1350	1431	1357	S08	W35	.571	12306	11.0	41	-B				.98				4 4 4 4
MCMA	13	1350	1435	1355	S09	W36	.585	12306	10.9	45	-B		C	1355	.83	.98			E
ATHN	13	1352E	1430	1356	S09	W35	.571	12306	11.0	38D	-B	3	V		1.16				F
RAMY	13	1353E	1435	1355U	S08	W36	.585	12306	10.9	42D	-B	3	V		.93				F
TEHR	13	1354E	1424	1401	S07	W33	.542	12306	11.1	30D	-N	2	V		.99				F
GRP48180	13	1545	1626	1602	S08	W37	.599	12306	10.9	41	--F				.83				2 2 2 3
MCMA	13	1545	1640D	1601	S06	W37	.599	12306	10.9	55D	-N		C	1601	.83	.90			E
ATHN	13	1600E	1612	1602	S09	W37	.599	12306	10.9	12D	-F	1	V		.83				F
GRP48182	13	1715	1742	1725	S08	W36	.585	12306	11.0	27	--N				.44				5 5 4 5
MCMA	13	1715	1755	1722	S08	W36	.585	12306	11.0	40	-N		C	1722	.52	.60			E
PALE	13	1715	1734	1728	S09	W36	.585	12306	11.0	19	-N	4	V		.46				F
PALE	13	1715	1734	1716	S09	W36	.585	12306	11.0	19	-N	4	V		.26				F
BOUL	13	1718E	1743D	1722	S07	W36	.585	12306	11.0	25D	-N		V	1722		.90			
HUAN	13	1723E	1731D		S08	W37	.599	12306	10.9	8D	-F	1	P	1725	.36	.44			E
RAMY	13	1729E	1735	1729U	S08	W35	.571	12306	11.1	6D	-F	3	V		.41				DE
GRP48183	13	1901	1931	1907	S09	W37	.599	12306	11.0	30	--F				.68				2 2 2 3
MCMA	13	1900	1936	1903	S09	W36	.585	12306	11.1	36	-N		C	1903	.72	.80			EL
PALE	13	1902	1926	1911	S08	W37	.599	12306	11.0	24	-F	2	C		.63				F
GRP48184	13	1941	1948	1943	S12	W37	.602	12306	11.0	7	--F				.35				4 4 4 4
PALE	13	1940	1948	1944	S11	W37	.601	12306	11.0	8	-N	2	C		.45				F
MCMA	13	1941	1947	1942	S13	W37	.604	12306	11.0	6	-N		C	1942	.31	.40			D
HUAN	13	1941	1948	1943	S12	W38	.616	12306	11.0	7	-F	1	C	1943	.21	.26			D
RAMY	13	1942E	1949	1943U	S10	W34	.558	12306	11.3	7D	-F	2	V		.41				DE
GRP48185	13	2016	2034	2023	S08	W38	.613	12306	11.0	18	--F				.72				2 2 1 4
MCMA	13	2016	2036	2019	S08	W38	.613	12306	11.0	20	-N		C	2019	.72	.80			E
BOUL	13	2025E	2031	2026	S07	W37	.599	12306	11.1	6D	-F		V	2026		.50			
GRP48186	13	2051	2102	2053	S08	W38	.613	12306	11.0	11	--F				.40				2 2 2 3
MCMA	13	2051	2104	2052	S09	W37	.599	12306	11.1	13	-N		C	2052	.52	.60			D
PALE	13	2051	2059	2053	S07	W38	.613	12306	11.0	8	-F	2	C		.27				F
187 MCMA	13	2139	2155D	2148	S09	W39	.626	12306	11.0	16D	--N		C	2148	.62	.70			E 2
188 BOUL	13	2206E	2211D	2207	S07	W38	.613	12306	11.1	5D	--F		V	2207		.50			2
GRP48195	14	0945	1009	0954	S09	W46	.716	12306	11.0	24	--N				.52				3 3 3 5
CATA	14	0945E	0955D	0955	S10	W45	.704	12306	11.0	10D	-B	3		0955	.58	.81		(209)	
ATHN	14	0948E	1015	0950	S08	W47	.728	12306	10.9	27D	-N	3	V		.66				F
TEHR	14	0953E	1003	0957	S08	W46	.716	12306	11.0	10D	-N	3	V		.33				DE
TEHR	14	1007	1011	1008	S08	W46	.716	12306	11.0	4	-F	3	V		.17				DE

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	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP48196	14	1102	1114	1106	S08	W46	.716	12306	11.0	12	--N				.51				4 3 3 5
TEHR	14	1035	1116	1037	S08	W46	.716	12306	11.0	41	-F	3	V		.17				DE
ATHN	14	1058E	1114	1103	S08	W47	.728	12306	10.9	16D	-N	3	V		.50				DE
CAPS	14	1102	1109		S07	W43	.679	12306	11.2	7	-B	2	S	1109	.50	.70		(240)	
MONT	14	1106	1120	1109	S10	W47	.728	12306	10.9	14	-N		C	1109	.52				E
GRP48198	14	1229	1251	1234	S09	W46	.716	12306	11.1	22	-N				.76				5 5 5 6
MEUD	14	1227	1250	1234	S09	W45	.704	12306	11.1	23	-N		C	1234	.72	1.00			E
CAPS	14	1227	1247		S07	W43	.679	12306	11.3	20	-B	2	V	1232	.60	.90		(270)	
CATA	14	1230	1255	1235	S10	W47	.728	12306	11.0	25	-B	3		1235	1.16	1.69		(245)	
RAMY	14	1230	1250	1233	S10	W44	.692	12306	11.2	20	-N	4	V		.65				DE
ATHN	14	1232E	1234D	1232U	S09	W49	.751	12306	10.8	2D	-N	2	V		.66				DE
GRP48200	14	1434	1505	1443	S09	W47	.728	12306	11.1	31	-B				1.15				7 7 6 8
LOCA	14	1430E	1505	1435	S09	W45	.704	12306	11.2	35D	1N		V	1435	1.68	2.30			
BOUL	14	1435	1459	1442	S08	W46	.716	12306	11.2	24	-N		V						
CAPS	14	1435	1500		S07	W44	.691	12306	11.3	25	-B	1	S	1440	1.00	1.40		(290)	C
MCMA	14	1437	1515	1445	S11	W49	.751	12306	10.9	38	-B		C	1445	1.03	1.60			E
HUAN	14	1438E	1442D		S10	W48	.740	12306	11.0	4D	-N	1	P	1440	.41	.62			E
CATA	14	1440E	1445D	1445	S09	W49	.751	12306	10.9	5D	1B	3		1445	1.44	2.19		(245)	
ATHN	14	1443E	1451D	1446	S09	W50	.762	12306	10.9	8D	-B	2	V		1.32				U F
203 MCMA	14	2105	2127D	2107	S08	W55	.815	12306	10.8	22D	--N		C	2107	.41	.70			E 1
GRP48204	14	2137	2208	2142	S08	W53	.795	12306	10.9	31	-F				1.35				3 2 1 3
PALE	14	2137	2207	2142	S07	W53	.795	12306	10.9	30	-N	2	C		1.35				F
BOUL	14	2139E	2208D	2141	S09	W51	.773	12306	11.1	29D	-F		V	2141		1.90			
HUAN	14	2156E	2158D		S08	W54	.805	12306	10.9	2D	-N	1	P						E
GRP48205	15	0333	0350	0335	S06	W59	.854	12306	10.7	17	--N				.46				2 2 2 3
TEHR	15	0331	0350	0335	S05	W59	.855	12306	10.7	19	-N	4	C		.36				F
PALE	15	0334	0349	0334	S06	W58	.845	12306	10.8	15	-N	2	C		.55				
GRP48206	15	0701	0720	0705	S07	W58	.845	12306	10.9	19	--N				.66				4 4 4 5
MANI	15	0658E	0718	0701U	S07	W58	.845	12306	10.9	20D	-N	1		0701	.83	1.48			
CAPS	15	0700	0723		S08	W56	.825	12306	11.1	23	-B	3	V	0707	.60	1.00		(220)	C
TEHR	15	0702	0718	0710	S06	W58	.845	12306	10.9	16	-N	4	C		.55				F
ATHN	15	0702E	0721D	0704	S08	W59	.853	12306	10.9	19D	-N	1	C		.66				F
GRP48207	15	0901	0927	0906	S06	W60	.863	12306	10.9	26	--N				.40				6 6 5 9
ISTA	15	0900	0925	0910	S08	W59	.853	12306	10.9	25	-N								
MANI	15	0900E	0925D	0903U	S07	W59	.854	12306	10.9	25D	-N	1		0903	.52	.92			
ARCE	15	0900	0930	0905	S04	W62	.881	12306	10.7	30	-N		C	0905	.31	.60			
MEUD	15	0902	0924	0904	S06	W61	.872	12306	10.8	22	-F		C	0904	.41	.80			EK
ATHN	15	0903E	0911D	0903U	S07	W60	.863	12306	10.9	8D	-N	1	V		.50				DE
TEHR	15	0903	0929	0910	S06	W59	.854	12306	11.0	26	-N	4	C		.25				F
208 MCMA	15	1715	1730	1717	S09	W64	.895	12306	10.9	15	--N		C	1717	.31	.70			E 2
209 MCMA	15	1739	1743	1739	S13	W66	.909	12306	10.8	4	--F		C	1739	.21	.50			D 3
210 MCMA	15	1748	1800	1750	S09	W64	.895	12306	10.9	12	-N		C	1750	.31	.70			E 3
211 RAMY	15	2005	2014D	2006U	S05	W68	.925	12306	10.7	9D	--F	3	V		.52				DE 1
	15	2033	2037	NO FLARE PATROL															
	15	2130	2230	NO FLARE PATROL															
212 MANI	15	2236E	2245	2238	S07	W69	.931	12306	10.8	9D	-N	2		2238	.52	1.09			1
213 MANI	15	2300	2314D	2308	S07	W69	.931	12306	10.8	14D	-N	2		2308	.52	1.09			2
213 MANI	15	2300	2314D	2314U	S07	W69	.931	12306	10.8	14D	*-N	2		2314	.62	1.31			1
214 MANI	15	2345E	2355	2352	S07	W70	.937	12306	10.7	10D	--F	2		2352	.41	.88			1
	16	0044	0107	NO FLARE PATROL															
	16	0119	0126	NO FLARE PATROL															
	16	0131	0138	NO FLARE PATROL															
	16	0217	0225	NO FLARE PATROL															
215 MANI	16	0237	0245	0238	S12	W69	.929	12306	10.9	8	--F	2		0238	.31	.65			1
	16	0245	0307	NO FLARE PATROL															

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
	16	0309	0325	NO FLARE PATROL															
	16	0358	0409	NO FLARE PATROL															
GRP48216	16	0804	0821	0809	S08	W73	.953	12306	10.9	17	-N				.54				6 6 5 9
ARCE	16	0800E	0920	0812	S07	W73	.954	12306	10.9	80D	-F		C	0812	.63	1.50			
ATHN	16	0802	0822	0805	S07	W72	.948	12306	10.9	20	-N	1	C		.66				F
MANI	16	0804	0811D	0808	S07	W73	.954	12306	10.9	7D	-N	2		0808	.41	.92			
UPIC	16	0806	0825U	0809	S08	W76	.968	12306	10.6	19D	-N		P	0809	.42				
ISTA	16	0806	0817		S08	W70	.937	12306	11.1	11	-F								
CATA	16	0810E	0925D	0810	S08	W73	.953	12306	10.9	75D	-N	3		0810	.58			(186)	
GRP48217	16	0958	1016	0959	S08	W71	.942	12306	11.1	18	-N				.47				4 4 4 6
ATHN	16	0955	1008	0958	S07	W73	.954	12306	10.9	13	-N	1	C		.50				DE
MONT	16	0956	1006	0958	S08	W70	.937	12306	11.2	10	-N		C	0958	.41				E
ARCE	16	0959E	1020D		S07	W72	.948	12306	11.0	21D	-N		C	0959	.37	.90			
CATA	16	1000	1030	1000	S08	W70	.937	12306	11.2	30	-N	3		1000	.58			(186)	
GRP48220	16	1725	1747	1733	S08	W76	.968	12306	11.0	22	--N				.27				2 2 1 2
RAMY	16	1725	1755D		S08	W75	.963	12306	11.1	30D	-N	2	V						DE
PALE	16	1732E	1739	1733U	S07	W77	.972	12306	11.0	7D	-N	2	C		.27				
221 PALE	16	1820E	1823	1821U	S13	W76	.967	12306	11.1	3D	--F	2	V		.21				2
222 PALE	16	1923E	1930	1925U	S12	W78	.975	12306	11.0	7D	--F	2	V		.26				F 1
223 PALE	17	2251	2321	2254	N13	E85	.998	12322	24.3	30	-N	3	C		.27				2
GRP48224	18	0232	0254	0246	N10	E82	.993	12322	24.3	22	-N				.41				2 2 2 4
PALE	18	0232	0247	0241	N10	E82	.993	12322	24.3	15	-N	3	C		.36				
CROM	18	0243E	0300	0250	N10	E82	.993	12322	24.3	17D	-N		V	0250	.45				
GRP48226	18	0802	1105	0854	N11	E80	.988	12322	24.3	183	--N				.52				4 1 1 7
MONT	18	0802E	1105	0948	N11	E80	.988	12322	24.3	183D	-N		C	0948	.52				EK
ATHN	18	0809	0832	0812	N09	E78	.982	12322	24.2	23	-F	2	C		.33				DE
CANR	18	0840	0900	0843	N15	E78	.984	12322	24.2	20	-N		V	0843	.30	1.00			
ARCE	18	0850E	1000D		N09	E80	.988	12322	24.4	70D	-F		C	0930	.57	1.80			
228 HUAN	18	1430	1436	1433	N10	E77	.979	12322	24.4	6	--F	1	C	1433	.21				D 4
230 HUAN	18	1820	1823	1821	N10	E76	.975	12322	24.5	3	--F	1	C	1821	.21				D 3
	18	2156	2212	NO FLARE PATROL															
	18	2236	2255	NO FLARE PATROL															
	18	2256	2302	NO FLARE PATROL															
231 MANI	18	2259	2307D	2302	N11	E69	.943	12322	24.1	8D	--N	1		2302	.31	.66			2
232 MANI	18	2327	2330D	2329	N11	E70	.949	12322	24.2	3D	--N	2		2329	.31	.67			2
GRP48236	19	0245	0301	0249	N12	E69	.944	12322	24.3	16	-N				.52				2 2 2 3
MANI	19	0245	0305	0247	N11	E69	.943	12322	24.3	20	-N	2		0247	.62	1.33			
PALE	19	0248E	0257	0250U	N12	E68	.938	12322	24.2	9D	-N	2	V		.41				
237 MANI	19	0800	0812	0803	N10	E66	.924	12322	24.3	12	--N	2		0803	.41	.86			1
238 CANR	19	0942	1020	0949	N12	E63	.906	12322	24.1	38	-N		V		.78	1.50			2
239 RAMY	19	1033E	1039D	1036	N11	E64	.912	12322	24.2	6D	--F	2	C		.19				DE 3
240 CANR	19	1040	1105	1046	N12	E62	.899	12322	24.1	25	-N		V		.50	1.10			2
GRP48241	19	1243	1253	1244	N11	E63	.905	12322	24.3	10	--F				.21				1 1 1 1
RAMY	19	1243E	1253D	1244	N11	E63	.905	12322	24.3	10D	-F	4	V		.21				DE
RAMY	19	1243	1253	1244	N11	E63	.905	12322	24.3	1D	-F	2	C		.19				DE
243 HUAN	19	1423	1427	1425	N10	E63	.903	12322	24.3	4	--F	1	C	1425	.26	.57			4
GRP48244	19	1832	1842	1835	S14	E26	.455	12321	21.7	10	--N				.53				4 4 4 4
HUAN	19	1829	1845	1834	S15	E26	.459	12321	21.7	16	-N	1	C	1834	.67	.75			E
MCMA	19	1830	1843	1833	S15	E25	.445	12321	21.6	13	-N		C	1833	.52	.60			EH
PALE	19	1833E	1840D	1835U	S13	E28	.480	12321	21.9	7D	-N	3	V		.52				F H
CANR	19	1834	1840	1836	S14	E25	.440	12321	21.6	6	-F		V	1836	.40	.40			
	19	2108	2126	NO FLARE PATROL															
	19	2130	2200	NO FLARE PATROL															

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	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
GRP48245	20	0032	0047	0036	N08	E57	.851	12322	24.3	15	--F				.29				2 2 2 3
MANI	20	0031	0050	0035	N08	E57	.851	12322	24.3	19	-F	2		0035	.31	.56			
PALE	20	0033	0044	0037U	N07	E56	.841	12322	24.2	11	-F	2	C		.27				
GRP48246	20	0051	0100	0053	S15	E20	.374	12321	21.5	9	--N				.62				3 3 3 3
MANI	20	0050	0105	0054	S15	E20	.374	12321	21.5	15	-N	2		0054	.41	.44			
VORO	20	0052	0056	0053	S15	E19	.360	12321	21.5	4	-N		C	0053	.93	.98		56	D
PALE	20	0053E	0059D	0053U	S15	E22	.403	12321	21.7	6D	-F	2	V		.52				F
	20	0324	0414	NO FLARE PATROL															
	20	0419	0426	NO FLARE PATROL															
	20	0430	0450	NO FLARE PATROL															
	20	0505	0610	NO FLARE PATROL															
GRP48248	20	1405	1431	1407	N11	E50	.792	12322	24.3	26	--F				.36				2 2 2 4
ATHN	20	1405E	1446	1406	N10	E50	.789	12322	24.3	41D	-F	2	V		.50				F
HUAN	20	1405	1415	1408	N12	E49	.784	12322	24.3	10	-F	2	C	1408	.21	.33			D
	20	1601	1602	NO FLARE PATROL															
	20	1608	1610	NO FLARE PATROL															
	20	1630	1632	NO FLARE PATROL															
	20	1919	1952	NO FLARE PATROL															
	20	2035	2100	NO FLARE PATROL															
	20	2141	2215	NO FLARE PATROL															
GRP48250	21	0101	0119	0110	S16	E07	.223	12321	21.6	18	--N				.80				3 3 3 3
MANI	21	0052E	0110	0054U	S15	E10	.241	12321	21.8	18D	-N	1		0054	.83	.86			
GRON	21	0106E	0114	0106E	S17	E05	.222	12321	21.4	8D	-N		V	0106	.65				
VORO	21	0106	0117	0108	S16	E06	.214	12321	21.5	11	-N		C	0108	.93	.93		57	D
MANI	21	0113E	0125	0115U	S16	E08	.232	12321	21.7	12D	-N	1		0115	.31	.32			
GRP48251	21	0327	0405	0334	N13	E41	.702	12322	24.2	38	--N				.58				2 2 2 3
MANI	21	0327	0405	0330	N13	E40	.691	12322	24.1	38	-N	2		0330	.52	.70			
PALE	21	0332E	0358D	0337	N12	E42	.709	12322	24.3	26D	-N	2	C		.63				F
6 STATIONS REPORTING GROUP 48252. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48252	21	0650	0835	0742	N08	E37	.632	12322	24.1	105	--N				.69				5 3 2 6
MANI	21	0650	0840	0728	N08	E35	.606	12322	23.9	110	-N	2		0728	.72	.90			
ATHN	21	0655E	0738	0732	N08	E38	.644	12322	24.1	43D	-N	2	V		.66				DE
ISTA	21	0730E	0830		N09	E37	.636	12322	24.1	60D	-F								D
CAPS	21	0739	0830		N08	E33	.580	12322	23.8	51	-N	2	S	0742	.70	.90		(189)	
CATA	21	0750E	0850D	0805	N09	E36	.623	12322	24.0	60D	-N	3		0805	.87	1.11		(178)	T
48252	21	0657	0727	0659	N09	E37	.636	12322	24.1	30	*-F				.40				2 2 2 4
ATHN	21	0655E	0738	0657	N08	E38	.644	12322	24.1	43D	-F	2	V		.50				DE
TEHR	21	0658	0715	0701	N09	E35	.611	12322	23.9	17	-F	3	C		.29				F
253 PALE	21	1006	1039D	1036	N11	E34	.609	12322	24.0	33D	--F		C		.19				DE 3
GRP48255	21	1558	1617	1601	N14	E33	.615	12322	24.1	19	-N				.90				2 2 1 4
BOUL	21	1558	1613	1601	N12	E32	.590	12322	24.1	15	-F		V						
CANR	21	1600E	1620		N15	E33	.621	12322	24.1	20D	-B		V		.90				
256 PALE	21	1933E	1944		N11	E33	.596	12322	24.3	11D	-N	2	C						F 2
GRP48257	21	2050	2101	2056	N14	E34	.626	12322	24.4	11	--F				.31				2 2 2 3
RAMY	21	2050	2108	2100U	N14	E33	.615	12322	24.3	18	-F	3	C		.46				DE H
HUAN	21	2050	2053	2051	N13	E35	.632	12322	24.5	3	-F	1	C	2051	.15	.20			D
	21	2055	2113	NO FLARE PATROL															
	21	2125	2131	NO FLARE PATROL															
GRP48258	21	2126	2142	2133	N13	E33	.608	12322	24.4	16	--F				.36				2 2 2 2
RAMY	21	2126	2144D	2133U	N14	E33	.615	12322	24.4	18D	-F	3	C		.46				DE H
HUAN	21	2131E	2140		N12	E32	.590	12322	24.3	9D	-F	1	P	2133	.26	.32			
	21	2134	2137	NO FLARE PATROL															
	21	2158	2210	NO FLARE PATROL															

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	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
259 MANI	21	2340	2357	2347	N13	E33	.608	12322	24.5	17	--N	2		2347	.52	.66			2
260 MANI	22	0002	0011	0004	N13	E33	.608	12322	24.5	9	--F	2		0004	.31	.39			2
GRP48262	22	0243	0251	0245	N13	E32	.595	12322	24.5	8	--N				.41				2 2 2 3
CRON	22	0242E	0250	0244	N12	E32	.589	12322	24.5	8D	-N		V	0244	.30				
MANI	22	0243	0252D	0245	N13	E31	.583	12322	24.4	9D	-N	2		0245	.52	.64			
GRP48264	22	0955	1025	0958	N12	E27	.527	12322	24.4	30	--N				.71				2 2 2 4
CATA	22	0955	1025D	0955	N13	E27	.535	12322	24.4	30D	-N	3		0955	.58	.68		(182)	
ATHN	22	0957E	1009D	1000	N11	E27	.519	12322	24.4	12D	-N	3	V		.83				F
GRP48267	22	1407	1420	1410	S05	E87	.998	12323	29.1	13	-N				.33				6 6 5 6
CANR	22	1405	1420	1410	S05	E88	.999	12323	29.2	15	-N		V	1410	.40	1.50			
BOUL	22	1408	1423	1410	S03	E89	1.000	12323	29.3	15	-B		V						
CAPS	22	1408	1420		S07	E85	.995	12323	29.0	12	-N	2	V	1408	.30				
TEHR	22	1408E	1419	1408U	S05	E87	.998	12323	29.1	11D	-B	3	V		.33				DE
ATHN	22	1408	1422	1411	S05	E86	.997	12323	29.0	14	-N	2	C		.33				DE
RAMY	22	1409E	1417	1409U	S03	E85	.996	12323	29.0	8D	-N	3	C		.28				DE
GRP48268	22	1505	1600	1514	N12	E22	.465	12322	24.3	55	-N				1.26				4 4 3 4
ATHN	22	1504	1600	1508	N11	E21	.444	12322	24.2	56	-N	2	C		1.65				F
HUAN	22	1505	1519D	1512	N11	E22	.456	12322	24.3	14D	-F	2	P	1512	.52	.58			E
BOUL	22	1505E	1620D	1520U	N14	E23	.496	12322	24.4	75D	-N		V						
CANR	22	1511E	1540	1515	N12	E20	.441	12322	24.1	29D	-N		V	1515	1.60	1.80			
GRP48270	22	1823	1849	1832	N13	E21	.463	12322	24.3	26	--N				.39				3 3 2 3
PALE	22	1820	1848	1826	N14	E19	.451	12322	24.2	28	-N	3	V		.36				F
PALE	22	1820	1848	1821	N14	E19	.451	12322	24.2	28	-N	3	V		.21				F
PALE	22	1823	1858	1826	N11	E22	.456	12322	24.4	35	-N	3	C		.36				F
HUAN	22	1825	1847D	1835U	N12	E21	.453	12322	24.3	22D	-F	1	P	1835	.41	.46			E
BOUL	22	1830E	1850D	1834U	N14	E23	.496	12322	24.5	20D	-N		V						
GRP48271	22	2003	2016	2003	S06	E85	.995	12323	29.2	13	-N				.45				2 1 1 2
PALE	22	2003E	2016D	2003U	S06	E85	.995	12323	29.2	13D	-N	2	C		.45				
BOUL	22	2014	2026	2016	S03	E86	.997	12323	29.3	12	-N		V	2020	.60	2.10			
272 BOUL	22	2035	2046	2038	S03	E86	.997	12323	29.3	11	--F		V	2040	.20	7.50			2
GRP48275	22	2145	2223	2159	N13	E20	.451	12322	24.4	38	-N				1.70				4 3 3 4
BOUL	22	2145	2230	2152	N13	E20	.451	12322	24.4	45	-B		V	2155	1.80	1.85			
PALE	22	2146E	2210D	2151U	N12	E20	.441	12322	24.4	24D	-N	2	C		.81				F
VORO	22	2150E	2216		N15	E20	.472	12322	24.4	26D	1N		P	2151	2.50	2.76		67	E
MANI	22	2215E	2232	2215U	N14	E20	.462	12322	24.4	17D	-N	2		2215	1.03	1.17			
GRP48276	22	2242	2253	2245	S03	E84	.994	12323	29.2	11	-B				.66				4 4 3 4
VORO	22	2242	2248	2244	S02	E88	.984	12323	28.9	6	-N		C	2244	.65			62	D
BOUL	22	2242E	2300D	2245	S03	E85	.996	12323	29.3	18D	-B		V	2250	.30	1.10			
MANI	22	2243E	2250	2245	S03	E87	.998	12323	29.5	7D	1B	1		2245	1.03	3.09			
PALE	22	2243E	2246D		S03	E85	.996	12323	29.3	3D	-N	2	V						F
GRP48278	23	0305	0314	0307	S05	E79	.980	12323	29.1	9	-N				.47				2 2 2 4
PALE	23	0254E	0313	0257	S06	E77	.973	12323	28.9	19D	-N	3	V		.41				DE
PALE	23	0304	0312	0306	S04	E80	.984	12323	29.1	8	-N	3	V		.52				DE
MANI	23	0305	0315	0307	S04	E80	.984	12323	29.1	10	-N	2		0307	.41	1.06			
GRP48279	23	0317E	0330	0318	N15	E17	.440	12322	24.4	13	--F				.24				2 2 2 5
PALE	23	0317E	0334	0317U	N15	E17	.440	12322	24.4	17D	-N	3	V		.31				
TEHR	23	0319E	0325	0319U	N15	E17	.440	12322	24.4	6D	-F	3	V		.17				DE
281 TEHR	23	0532	0544	0540	N14	E16	.418	12322	24.4	12	--F	4	C		.09				DE 4
GRP48286	23	1703E	1805	(1717)	N11	E07	.299	12322	24.2	62	--F				.80				3 2 2 3
MCMA	23	1703E	1805D		N12	E07	.314	12322	24.2	62D	-N		C	1720	1.03	1.10			FL
HUAN	23	1706E	1722D		N11	E07	.299	12322	24.2	16D	-F	1	P	1713	.57	.59			E
PALE	23	1742E	1746		N11	E07	.299	12322	24.3	4D	-N	2	V						F
	23	1815	1817	NO FLARE PATROL															
GRP48287	23	1919	1954	1921	N11	E08	.306	12322	24.4	35	--N				.28				2 2 2 3
PALE	23	1919	1954	1921	N09	E06	.262	12322	24.3	35	-N	2	V		.15				F
MCMA	23	1924E	1936D		N12	E10	.336	12322	24.6	12D	-N		C	1935	.41	.40			E
48287	23	1930	2009	1946	N11	E06	.293	12322	24.3	39	--F				.62				4 3 3 4
HUAN	23	1926	2007		N11	E07	.299	12322	24.3	41	-F	1	C	1946	.62	.65			EI
PALE	23	1930	2012	1947	N11	E05	.288	12322	24.2	42	-N	2	C		.45				F
BOUL	23	1933	2007	1945	N11	E07	.299	12322	24.3	34	-F		V	1945	.80	.80			
MCMA	23	1955E	1958D		N12	E08	.321	12322	24.4	3D	-N		P	1955	.62	.60			E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT %	
288 HUAN	23	2030	2040	2032	N13	E07	.330	12322	24.4	10	--F	2	C	2032	.31	.33			2
GRP48289	23	2254	2323	2301	S07	E71	.943	12323	29.3	29	1N				1.64				4 3 3 4
BOUL	23	2253	2330	2300	S08	E73	.954	12323	29.4	37	1N		V	2300	1.70	4.50			
PALE	23	2254	2315	2300	S06	E69	.931	12323	29.1	21	1N	3	C		1.36				F
CULG	23	2254	2317	2257	N05	E70	.943	12323	29.2	23	1N		C	2257	.93				F
MANI	23	2302E	2308D	2302U	S07	E70	.937	12323	29.2	6D	1N	2		2302	1.86	3.98			
GRP48290	24	0242	0259	0244	S14	W37	.610	12321	21.3	17	-F				.23				2 2 2 5
MANI	24	0242	0257	0244	S15	W37	.612	12321	21.3	15	-F	2		0244	.21	.26			
TEHR	24	0242E	0300	0244U	S13	W36	.594	12321	21.4	18D	-F	3	V		.25				DE
GRP48291	24	0310	0320	0315	S14	W38	.623	12321	21.3	10	--F				.31				2 2 2 5
PALE	24	0310	0320	0315	S14	W39	.636	12321	21.2	10	-F	3	C		.36				
TEHR	24	0312E	0319	0314U	S13	W37	.607	12321	21.4	7D	-F	3	V		.25				DE
GRP48292	24	0417	0430	0416	S15	W39	.638	12321	21.3	13	--F				.45				3 3 3 5
MANI	24	0414	0445D	0417	S15	W38	.625	12321	21.3	31D	-N	2		0417	.62	.80			
TEHR	24	0418	0423	0419	S16	W39	.641	12321	21.3	5	-F	3	C		.09				DE
CRON	24	0418E	0423		S15	W39	.638	12321	21.3	5D	-F		V		.65				
GRP48293	24	0950	1006	0953	N14	W03	.327	12322	24.2	16	--N				.60				2 2 2 3
CATA	24	0950	1010D	0955	N14	W01	.324	12322	24.3	20D	-N	3		0955	.87	.91		(195)	
TEHR	24	0951E	1002	0951U	N14	W04	.330	12322	24.1	11D	-N	3	V		.33				DE
GRP48294	24	1315	1402	1318	N14	W04	.330	12322	24.3	47	--N				.63				4 3 3 5
CANR	24	1313	1337	1322	N03	W03	.146	12322	24.3	24	-F		V		.70				
MCMA	24	1314	1402	1318	N14	W02	.325	12322	24.4	48	-N		C	1318	.52	.50			E
CATA	24	1315	1335D	1315	N14	W03	.327	12322	24.3	20D	-B	3		1315	.87	.91		(234)	
TEHR	24	1320E	1331D	1320U	N14	W06	.338	12322	24.1	11D	-N	3	V		.50				DE
GRP48295	24	1413	1449	1415	N14	W03	.327	12322	24.4	36	--N				.76				4 3 3 5
HUAN	24	1412	1441D	1414U	N13	W03	.311	12322	24.4	23D	-N	1	P	1414	.72	.76			E
UPIC	24	1414	1447		N14	W04	.330	12322	24.3	33	-F		P	1417	.63				
BOUL	24	1414E	1425D	1416	N12	E11	.344	12322	25.4	11D	-B		V						
MCMA	24	1418E	1451D		N14	W03	.327	12322	24.4	33D	-B		C	1418	.93	1.00			
GRP48296	24	1446	1456	(1448)	S04	E58	.846	12323	29.0	10	--F				.47				2 2 2 4
MCMA	24	1445E	1451D		S04	E57	.837	12323	28.9	6D	-N		P	1445	.31	.60			DL
UPIC	24	1447	1456		S03	E58	.847	12323	29.0	9	-F		P	1451	.63				
297 RAMY	24	1554E	1605D	1554U	N07	W08	.247	12322	24.1	11D	--F	4	V		.46				DE 2
298 PALE	24	1743	1758	1747	S05	E54	.807	12323	28.8	15	--F	3	C		.36				3
GRP48299	24	1917	2010	1928	N13	W06	.323	12322	24.4	53	-B				1.84				2 2 2 2
PALE	24	1917	2010	1928	N13	W05	.318	12322	24.4	53	1B	3	C		2.35				F
RAMY	24	1924E	2010	1927	N13	W07	.328	12322	24.3	46D	-B	4	V		1.32				F
GRP48300	25	0053	0115	0103	N15	W09	.370	12322	24.4	22	--F				.43				2 2 2 4
PALE	25	0051	0112	0102	N15	W09	.370	12322	24.4	21	-F	3	C		.45				
MANI	25	0054	0118	0103	N14	W09	.355	12322	24.4	24	-N	2		0103	.41	.44			
GRP48301	25	0227	0306	0237	N14	W10	.362	12322	24.4	39	--N				.84				4 4 4 6
MANI	25	0152	0220	0157	N14	W09	.355	12322	24.4	28	-F	2		0157	.41	.44			
KODA	25	0208E	0313	0241	N13	W12	.365	12322	24.2	65D	-B		P	0209	2.06	2.10	1.68		E
PALE	25	0224	0249	0235	N15	W10	.376	12322	24.4	25	-F	3	C		.36				F
MANI	25	0230	0255	0235	N14	W10	.362	12322	24.4	25	-N	2		0235	.41	.44			
MITK	25	0239E	0325D		N14	W09	.355	12322	24.4	46D	-F		C	0240	.52	.60			D
GRP48303	25	0426	0501	0430	N11	W13	.349	12322	24.2	35	1N				2.26				4 4 4 7
MANI	25	0420	0510	0429	N11	W13	.349	12322	24.2	50	1N	2		0429	2.27	2.40			
ATHN	25	0422E	0452	0425	N10	W12	.326	12322	24.3	30D	-N	1	V		1.65				F
KODA	25	0427	0451D	0428	N13	W14	.384	12322	24.1	24D	1N		C	0436	2.33	2.40	1.80		EF
MITK	25	0436	0440D	0437	N11	W13	.349	12322	24.2	4D	1N		C	0437	2.78	3.00			E
GRP48306	25	0755	0808	0800	N14	W13	.387	12322	24.4	13	--F				.46				2 2 2 7
ATHN	25	0754	0805	0757	N13	W13	.374	12322	24.4	11	-F	2	C		.50				DE
MANI	25	0755	0810	0802	N14	W12	.378	12322	24.4	15	-F	2		0802	.41	.44			
GRP48308	25	0930	0947	0934	N14	W14	.396	12322	24.3	17	--F				.38				3 3 3 7
MANI	25	0930	0939D	0934U	N14	W13	.387	12322	24.4	9D	-F	2		0934	.41	.44			
CAPS	25	0930	0950		N13	W15	.394	12322	24.3	20	-N	2	S	0935	.40	.40		(190)	
ATHN	25	0932E	0944	0934	N15	W14	.409	12322	24.3	12D	-F	2	V		.33				DE
312 TEHR	25	1108	1119	1111	N13	W14	.384	12322	24.4	11	--N	4	V		.51				F 3
	25	1138	1143	NO FLARE PATROL															

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE		OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE		TIME UT	MEAS. AREA Sq. Deg.	CORR AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
GRP48313	25	1212	1247	1222	N12	W18	.415	12322	24.2	35	-N					1.45				7 7 6 7
HUAN	25	1216E	1240		N11	W20	.429	12322	24.0	30D	-N	1	P							
ATHN	25	1211E	1222D	1213	N15	W18	.448	12322	24.2	11D	-N	2	V			.83				F
RAMY	25	1212	1250	1219	N12	W20	.439	12322	24.0	38	-N	4	C			1.30				U F
CAPS	25	1212	1245		N12	W15	.382	12322	24.4	33	-B	1	S		1215	1.00	1.10		(240)	
CATA	25	1215	1230D	1225	N13	W18	.426	12322	24.2	15D	1N	3			1225	2.31	2.56		(191)	
MCMA	25	1221E	1340		N12	W19	.427	12322	24.1	79D	-N		C		1226	.93	1.00			E
TEHR	25	1229E	1252	1229U	N12	W18	.415	12322	24.2	23D	1N	2	V			2.31				F
GRP48314	25	1405	1415	(1407)	S13	E47	.732	12323	29.1	10	-N					.76				2 2 2 5
CAPS	25	1405	1410		S12	E48	.743	12323	29.2	5	-B	2	V		1406	1.00	1.40			
MCMA	25	1405E	1420		S14	E45	.710	12323	29.0	15D	-F		C		1407	.52	.70			E
GRP48316	25	1532	1554	1540	S06	E49	.752	12323	29.3	22	-N					.74				4 4 3 4
RAMY	25	1525E	1545	1528	S04	E48	.741	12323	29.2	20D	-N	4	V			.28				DE
MCMA	25	1527	1605	1538	S06	E47	.729	12323	29.2	38	-N		C		1538	.83	1.30			E
HUAN	25	1534	1550	1541	S05	E50	.764	12323	29.4	16	-F	1	C							
CAPS	25	1542	1555		S10	E50	.764	12323	29.4	13	-N	2	V		1543	1.10	1.50		(200)	
GRP48317	25	1610	1701	1621	S02	E37	.602	12323	28.4	51	--F					1.04				2 2 2 3
MCMA	25	1610	1702	1623	S02	E36	.588	12323	28.4	52	-F		C		1623	.52	.60			EL
RAMY	25	1615E	1700	1619U	S02	E37	.602	12323	28.5	45D	-N	4	V			1.55				DE
GRP48318	25	1658	1714	1703	N14	W19	.448	12322	24.3	16	--F					.47				4 4 4 4
MCMA	25	1656	1714	1701	N15	W18	.448	12322	24.4	18	-N		C		1701	.41	.50			E
RAMY	25	1659	1714	1702	N14	W18	.437	12322	24.4	15	-N	4	V			.31				DE
HUAN	25	1700	1710	1702	N14	W19	.448	12322	24.3	10	-F	1	C		1702	.26	.29			
PALE	25	1703E	1719	1707	N14	W20	.459	12322	24.2	16D	-F	2	C			.91				F
GRP48319	25	2107	2200	2112	S04	E39	.628	12323	28.8	53	--F					.68				2 2 2 2
MCMA	25	2107	2200D	2112	S04	E37	.600	12323	28.7	53D	-F		C		2112	.52	.60			E
RAMY	25	2109E	2130D	2111U	S03	E41	.655	12323	29.0	21D	-F	3	V			.83				DE
	25	2200	2220	NO FLARE PATROL																
GRP48320	26	0134	0144	0135	S14	E48	.649	12323	29.1	10	--N					.26				2 2 2 3
MANI	26	0134E	0145	0134U	S14	E41	.662	12323	29.1	11D	-N	2			0134	.21	.28			
CRON	26	0134E	0142	0136	S13	E39	.634	12323	29.0	8D	-N		V		0136	.30				
321 CRON	26	0156E	0230		S13	E42	.673	12323	29.2	4D	--F		V			.70				3
GRP48323	26	0628	0724	0642	N12	W29	.549	12322	24.1	56	-B					2.32				6 6 6 8
MANI	26	0624	0731	0636	N13	W30	.568	12322	24.0	67	1B	2			0636	3.61	4.41			
MANI	26	0624	0731	0631U	N13	W30	.568	12322	24.0	67	1N	2			0631	2.27	2.77			
CRON	26	0627E	0722	0631	N11	W30	.555	12322	24.0	55D	-N		V		0631	1.50				
CRON	26	0627E	0722	0638	N12	W31	.574	12322	23.9	55D	-N		V		0638	1.50				
ATHN	26	0628	0732	0637U	N12	W30	.562	12322	24.0	64	-N	2	C			1.65				F
CAPS	26	0630	0706		N10	W25	.483	12322	24.4	36	1B	3	P		0635	2.00	2.40		(370)	
UPIC	26	0632	0729		N13	W31	.581	12322	23.9	57	-B		P			1.69				
CATA	26	0635E	0725	0655	N14	W29	.563	12322	24.1	50D	1B	3			0655	3.48	4.20		(240)	
GRP48324	26	0842	0857	0848	S06	E28	.468	12323	28.5	15	-N					.94				5 5 5 9
MONT	26	0836	0858	0839	S05	E26	.437	12323	28.3	22	-N		C		0839	.41				E
CANR	26	0840	0900	0848	S07	E28	.469	12323	28.5	20	1F		V		0848	1.80	2.10			
ATHN	26	0843	0903	0847	S06	E29	.483	12323	28.5	20	-F	2	C			.83				DE
CRON	26	0846	0851		S07	E28	.469	12323	28.5	5	-N		V			.85				
CAPS	26	0847	0855		S07	E28	.469	12323	28.5	8	-N	2	V		0849	.80	1.00		(180)	
GRP48325	26	1302	1317	1305	S11	E31	.520	12323	28.9	15	--N					.64				5 5 5 8
ATHN	26	1301	1321	1305	S12	E31	.523	12323	28.9	20	-N	2	C			.83				DE
RAMY	26	1301E	1315	1303U	S08	E29	.485	12323	28.7	14D	-N	4	V			.46				DE
MCMA	26	1302	1316	1306	S11	E31	.520	12323	28.9	14	-N		C		1306	.62	.70			E
HUAN	26	1302	1312	1307	S11	E32	.534	12323	28.9	10	-N	2	C		1307	.41	.49			E
CATA	26	1305	1320	1305	S11	E30	.505	12323	28.8	15	-N	1			1305	.87	1.00		(158)	
GRP48327	26	1606	1619	1610	S14	E33	.557	12323	29.1	13	--N					.75				3 3 3 6
RAMY	26	1604	1617	1608	S14	E33	.557	12323	29.1	13	-F	3	C			.56				DE
ATHN	26	1605E	1609D	1607	S12	E34	.565	12323	29.2	4D	-N	1	V			.83				F
CATA	26	1610	1620	1615	S15	E33	.560	12323	29.1	10	-N	3			1615	.87	1.05		(158)	
3 STATIONS REPORTING GROUP 48328. 0 STATIONS OBSERVING AND NOT REPORTING.																				
GRP48328	26	1917	2054	1920	N12	W36	.636	12322	24.1	97	-N					.59				2 2 2 2
MCMA	26	1916	1933D	1919	N13	W36	.641	12322	24.1	17D	-N		C		1919	.62	.70			E
RAMY	26	1917	2054	1928	N11	W36	.631	12322	24.1	97	-N	2	C			.56				U S
48328	26	1933	2118	1951	N13	W36	.641	12322	24.1	97	*-N					1.34				2 1 1 3
MCMA	26	1933	2118	1951	N13	W36	.641	12322	24.1	97	-N		C		1951	1.34	1.70			EKX
BOUL	26	1938E	2115D	1938E	N12	W37	.648	12322	24.0	97D	1N		V		1938		2.36			

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
329 HCMA	26	2159	2201D		N13	W38	.665	12322	24.1	2D	--F		P	2201	.36	.50			E 2
330 MANI	26	2244E	2257	2244U	S08	E20	.344	12323	28.4	13D	--F	1		2244	.41	.44			2
332 MANI	26	2300	2318	2307	N10	W33	.588	12322	24.5	18	--N	1		2307	.72	.90			2
333 BOUL	27	0003	0024	0008	S07	E07	.128	12334	27.5	21	--F		V	0008		.40			3
GRP48334	27	0342	0420	0355	S04	E20	.341	12323	28.7	38	-N				1.03				4 3 3 5
TEHR	27	0335	0441	0353	S03	E19	.326	12323	28.6	66	-N	4	C		.91				F
MANI	27	0336	0437	0404	S06	E22	.374	12323	28.8	61	-F			0404	.83	.89			
MANI	27	0336	0435	0352U	S06	E22	.374	12323	28.8	59	-F	2		0352	.52	.56			
MANI	27	0343	0415	0352	S02	E20	.344	12323	28.7	32	-N	2		0352	1.03	1.10			
CRON	27	0348	0415		S03	E21	.359	12323	28.7	27	-N		V		1.15				
ATHN	27	0400E	0410	0400U	S04	E21	.358	12323	28.7	10D	-N	1	V		.99				DE
GRP48335	27	0415	0430	0421	S01	E24	.410	12323	29.0	15	--F				.50				2 2 2 4
TEHR	27	0414	0429	0422	S02	E23	.392	12323	28.9	15	-F	4	C		.28				DE
MANI	27	0415	0430	0419	S00	E24	.413	12323	29.0	15	-F	2		0419	.72	.79			
GRP48337	27	0932	0947	0935	N11	W36	.630	12322	24.7	15	--N				.73				6 6 6 10
CAPS	27	0928	0953		N10	W33	.587	12322	24.9	25	-B	2	V	0933	.50	.60		(225)	
MONT	27	0931	0940	0933	N11	W38	.655	12322	24.5	9	-N		C	0933	.21				D
MEUD	27	0932	0942	0933	N11	W37	.643	12322	24.6	10	-F		C	0933	.62	.80			E
ZURI	27	0932	0954	0934	N12	W37	.647	12322	24.6	22	-N		C	0934	1.65	2.20			
TEHR	27	0933	0943D	0940	N10	W35	.613	12322	24.8	10D	-F	3	C		.55				F
CATA	27	0935	0950	0935	N13	W37	.653	12322	24.6	15	-B	3		0935	.87	1.14		(204)	
GRP46338	27	1013	1037	1017	N13	W37	.653	12322	24.7	24	-B				1.48				7 7 7 8
ZURI	27	1008	1034	1014	N14	W39	.681	12322	24.5	26	1B		C	1014	2.27	3.10			
CANR	27	1011	1025	1015	N14	W38	.669	12322	24.6	14	1N		V	1015	2.10	2.70			
UPIC	27	1011	1043	1015	N14	W37	.658	12322	24.6	32	1B		P	1015	2.54				
MEUD	27	1012	1025	1015	N13	W38	.664	12322	24.6	13	-N		C	1015	1.13	1.50			E
CATA	27	1015	1050	1015	N14	W38	.669	12322	24.6	35	-B	3		1015	1.16	1.55		(240)	
CAPS	27	1022	1044		N11	W34	.605	12322	24.9	22	-B	1	S	1022	.60	.70		(280)	
RAMY	27	1024E	1133	1026U	N13	W37	.653	12322	24.7	69D	-N	2	C		.56				DE
GRP48339	27	1112	1130	1116	N11	W37	.643	12322	24.7	18	--N				.82				5 4 4 8
RAMY	27	1024E	1133	1052U	N13	W37	.653	12322	24.7	69D	-F	2	C		.84				DE
MONT	27	1109	1136	1118	N12	W38	.659	12322	24.6	27	-N		C	1118	.52				E
ZURI	27	1110	1130	1114	N12	W37	.647	12322	24.7	20	-F		C	1114	1.65	2.20			
MEUD	27	1112	1125		N12	W38	.659	12322	24.6	13	-F		C	1116	.62	.80			
CAPS	27	1118	1129		N09	W33	.582	12322	25.0	11	-B	2	S	1120	.50	.60		(210)	
GRP48340	27	1210	1237	1217	S08	E11	.199	12323	28.3	27	--N				.74				9 9 9 9
MONT	27	1204	1234D	1219	S08	E11	.199	12323	28.3	30D	-N		C	1219	.52				E
ZURI	27	1208	1234	1214	S08	E11	.199	12323	28.3	26	-N		C	1214	1.24	1.30			
HUAN	27	1209	1235	1219	S08	E10	.182	12323	28.3	26	-F	2	C	1219	.21	.21			D
MEUD	27	1209	1238		S07	E11	.194	12323	28.3	29	-F		C	1214	.41	.40			E
UPIC	27	1210	1233		S06	E11	.192	12323	28.3	23	-N		P	1216	.85				DI
CATA	27	1210	1250	1225	S07	E10	.178	12323	28.3	40	-N	1		1225	.58	.58		(191)	
RAMY	27	1213E	1240	1213U	S08	E10	.182	12323	28.3	27D	-N	4	C		.46				DE
CANR	27	1214E	1230	1214E	S08	E11	.199	12323	28.3	16D	-N		V	1214	1.20	1.20			
CAPS	27	1215	1238		S12	E17	.315	12323	28.8	23	-N	2	V	1217	1.20	1.20		(190)	
	27	1755	1757	NO FLARE PATROL															
	27	1833	1840	NO FLARE PATROL															
	27	1917	1929	NO FLARE PATROL															
GRP48343	28	0002	0054	0008	S08	E08	.151	12323	28.6	52	-N				1.12				4 3 3 5
PALE	28	0002	0054	0007	S07	E08	.145	12323	28.6	52	-N	3	C		.99				F
MITK	28	0002	0016D	0008	S07	E08	.145	12323	28.6	14D	-F		C	0008	1.55	1.60			E
MANI	28	0008E	0018D	0008U	S09	E08	.159	12323	28.6	10D	-N	2		0008	.83	.84			
CRON	28	0014E	0019		S07	E09	.162	12323	28.7	5D	-F		V		1.30				
346 ATHN	28	0538	0544D	0542	S02	E32	.531	12323	30.6	6D	--F	2	C		.33				DE 5
GRP48349	28	0945	1000	0949	N10	E48	.766	12329	2.0	15	--F				.22				2 2 2 6
ATHN	28	0944	1000	0947	N07	E48	.758	12329	2.0	16	-F	3	C		.33				DE H
MONT	28	0945	0959D	0951	N13	E47	.764	12329	1.9	14D	-N		C	0951	.10				OH
GRP48351	28	1232	1301	1235	S13	E06	.180	12323	29.0	29	--F				.28				2 2 1 7
RAMY	28	1230	1301	1234	S13	E05	.171	12323	28.9	31	-F	4	C		.28				DE
HUAN	28	1233	1240D	1236	S12	E06	.166	12323	29.0	7D	-F	1	C						

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME UT	MEAS. AREA Sq. Deg.	CORR AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP48353	28	1457	1610	1514	S13	E06	.180	12323	29.1	73	--N				.74				2 1 1 5
RAMY	28	1457	1610D	1514	S13	E06	.180	12323	29.1	73D	-N	4	C		.74				DE
UPIG	28	1531	1614	1533	S12	E04	.148	12323	28.9	43	-F		P	1533	.63				I
GRP48354	28	1630	1655	1632	N12	W57	.857	12322	24.4	25	--F				.31				2 2 1 5
MCMA	28	1630E	1710D		N12	W58	.866	12322	24.3	40D	-F		C	1631	.31	.60			E
BOUL	28	1630	1639	1632	N12	W56	.849	12322	24.5	9	-F		V						
GRP48355	28	1741	1823	1749	S08	W01	.064	12323	28.7	42	-F				1.34				4 2 1 4
RAMY	28	1740	1835	1743	S08	E01	.064	12323	28.8	55	-N	2	V		1.34				DE
BOUL	28	1742	1813	1745	S07	W02	.056	12323	28.6	31	1F		V	1745		2.40			
MCMA	28	1755E	1820D		S07	W03	.068	12323	28.5	25D	-N		P	1804	.93	.90			E
PALE	28	1756E	1824	1758U	S07	E00	.044	12323	28.7	28D	-N	3	V		1.86				F
356 PALE	28	1933E	1956	1942	N13	W56	.851	12322	24.6	23D	--F	2	C		.36				F 3
GRP48357	28	2014	2028	2016	N13	W58	.868	12322	24.5	14	-F				.63				2 2 1 4
PALE	28	2013E	2028	2013	N13	W57	.859	12322	24.6	15D	-N	2	C		.63				DE
BOUL	28	2015	2028	2018	N13	W58	.868	12322	24.5	13	-F		V	2018		1.50			
48357	28	2021	2040	2031	N13	W60	.884	12322	24.3	19	*-F				.36				2 2 1 5
MCMA	28	2012	2040D		N12	W60	.882	12322	24.3	28D	-N		C	2030	.36	.70			EK
BOUL	28	2030	2040	2031	N13	W59	.876	12322	24.4	10	-F		V	2031		.75			
GRP48359	28	2246	2253	2248	N11	W61	.888	12322	24.4	7	-N				.73				2 2 2 2
MANI	28	2246E	2255	2248	N10	W62	.894	12322	24.3	9D	-N	1		2248	.83	1.60			
PALE	28	2246	2251	2247	N10	W60	.879	12322	24.4	5	-N	3	V		.62				
PALE	28	2246	2251	2249	N13	W60	.884	12322	24.4	5	-N	2	C		.55				
4 STATIONS REPORTING GROUP 48361. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48361	29	0133	0211	0134	N14	W65	.921	12322	24.2	38	-N				.57				3 3 2 3
MANI	29	0132	0218	0134	N15	W66	.928	12322	24.1	46	-N	2		0134	.41	.84			
PALE	29	0133	0138D	0135	N14	W64	.914	12322	24.3	5D	-N	2	C		.72				F
CRON	29	0133E	0204	0133E	N14	W66	.927	12322	24.1	31D	1N		V						
48361	29	0132	0218	0150	N15	W66	.928	12322	24.1	46	*-N				.93				2 1 1 4
MANI	29	0132	0218	0150	N15	W66	.928	12322	24.1	46	-N			0150	.93	1.89			
TEHR	29	0218	0248	0224	N13	W66	.926	12322	24.1	30	-N	2	C		.36				DE
GRP48362	29	0252	0306	0254	N13	W65	.919	12322	24.2	14	--F				.31				2 2 1 5
MANI	29	0252	0309D	0254	N13	W65	.919	12322	24.2	17D	-F	2		0254	.31	.62			
CRON	29	0259	0303		N13	W65	.919	12322	24.2	4	-F		V						
GRP48363	29	0414	0430	0419	N12	W65	.918	12322	24.3	16	1N				1.85				4 4 3 5
MANI	29	0348E	0351D	0351U	N13	W65	.919	12322	24.3	3D	-F	2		0351	.31	.62			
TEHR	29	0351	0439	0419	N14	W64	.914	12322	24.4	48	1N	4	C		1.37				F
MANI	29	0413	0418D	0418U	N12	W67	.931	12322	24.2	5D	1B	2		0418	1.44	3.00			
TACH	29	0415	0424	0420	N10	W62	.894	12322	24.5	9	1N		C	0420	2.73		2.67	69	ELU
CRON	29	0415E	0428		N10	W67	.929	12322	24.2	13D	-N		V						
GRP48365	29	0625	0732	0634	N12	W65	.918	12322	24.4	67	-B				1.00				5 4 4 6
CAPS	29	0624	0746		N12	W63	.904	12322	24.5	82	-B	2	V	0630	.60			(370)	
BUCA	29	0625E	0705D		N13	W67	.932	12322	24.2	40D	1N		C	0631	1.32	3.40			E
MANI	29	0626	0647D	0630	N13	W66	.926	12322	24.3	21D	-B	2		0630	.93	1.89			
ATHN	29	0628E	0718	0630	N10	W65	.916	12322	24.4	50D	-B	3	V		1.16				DE
KODA	29	0640	0648	0641	N12	W64	.911	12322	24.5	8	1B		C	0642	4.95	4.95	1.42		E
6 STATIONS REPORTING GROUP 48366. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48366	29	0959	1028	1006	N12	W74	.967	12322	23.9	29	-B				.87				4 4 3 6
ISTA	29	0955	1025	1004	N13	W71	.954	12322	24.1	30	-B								
ATHN	29	1001E	1130	1003	N12	W72	.958	12322	24.0	89D	-B	3	V		.66				DE
CANR	29	1001	1005D	1005	N11	W80	.988	12322	23.4	4D	-B		V	1005	.80	1.60			
CATA	29	1005E	1030	1010	N12	W73	.963	12322	23.9	25D	1B	3		1010	1.16			(219)	
48366	29	1035	1100	1040	N13	W65	.919	12322	24.6	25	*-N				.58				2 2 1 7
ISTA	29	0910	1050D		N12	W65	.918	12322	24.5	100D	-N								
CATA	29	1035	1100D	1040	N13	W65	.919	12322	24.6	25D	-N	3		1040	.58	1.47		(191)	
48366	29	1015	1119	1018	N12	W66	.925	12322	24.5	64	*1N				2.78				2 1 1 8
RAMY	29	1015E	1119D	1018U	N12	W66	.925	12322	24.5	64D	1N	2	C		2.78				F
CAPS	29	1030	1112		N11	W63	.903	12322	24.7	42	-B	1	S	1102	.80				
370 RAMY	29	1628E	1637	1629U	N13	W72	.959	12322	24.3	9D	--F	3	V		.21				DE 1
GRP48371	29	1719	1744	1729	S01	W09	.167	12323	29.0	25	--N				.64				2 2 2 3
PALE	29	1719	1735	1733	N01	W10	.197	12323	29.0	16	-N	3	C		.63				F
PALE	29	1722E	1730	1724U	S03	W07	.124	12323	29.2	8D	-N	3	V		.31				F
RAMY	29	1724E	1753	1725	S00	W09	.174	12323	29.1	29D	-N	3	V		.65				U

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.			MEASUREMENTS					REMARKS
	DATE APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE		TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
372 RAMY	29	1725	1739	1728	N07	W69	.938	12322	24.6	14	--F	3	C			.93				DE 3
GRP48373	29	1839	1905	1843	N13	W73	.964	12322	24.3	26	-N					.75				3 3 3 3
RAMY	29	1835	1905D	1841	N11	W69	.942	12322	24.6	30D	-N	3	C			.93				DE
PALE	29	1840	1851D	1843	N14	W73	.964	12322	24.3	11D	-N	3	C			.81				ZDE
CANR	29	1843	1848D	1846	N13	W77	.980	12322	24.0	5D	-N		V		1846	.50	1.50			
	29	1856	1859	NO FLARE PATROL																
	29	1907	1911	NO FLARE PATROL																
	29	1947	1948	NO FLARE PATROL																
4 STATIONS REPORTING GROUP 48374. 0 STATIONS OBSERVING AND NOT REPORTING.																				
GRP48374	29	2056	2238	2104	N14	W73	.964	12322	24.4	102	2B					2.59				2 2 2 2
RAMY	29	2056	2150D	2100	N13	W73	.964	12322	24.4	54D	2B	2	V			2.64				Z U
PALE	29	2056E	2238D	2108	N14	W72	.960	12322	24.5	102D	2B	3	C			2.53				Z F
PALE	29	2056E	2238D	2100	N14	W72	.960	12322	24.5	102D	1B	3	C			2.07				Z F
48374	29	2158E	2255	2158	N13	W75	.972	12322	24.3	57	*1B					1.55				2 1 1 5
MANI	29	2158E	2255	2158U	N13	W75	.972	12322	24.3	57D	1B	1			2158	1.55	3.66			
MITK	29	2245E	2320	2303	N13	W90	1.000	12322	23.2	35D	1F		C		2303	.52				EH
GRP48375	29	2259	2323	2302	S07	W18	.311	12323	28.6	24	-N					.93				2 2 2 2
MANI	29	2254	2322	2257	S06	W18	.309	12323	28.6	28	-N	2			2257	1.13	1.19			
MITK	29	2303	2323	2307	S08	W18	.313	12323	28.6	20	-N		C		2307	.72	.80			E
GRP48377	30	0458	0510	0500	S05	W20	.341	12323	28.7	12	--F					.47				4 4 4 6
TEHR	30	0457	0512	0459	S04	W20	.341	12323	28.7	15	-N	3	C			.23				DE
MANI	30	0458	0510D	0500	S06	W20	.342	12323	28.7	12D	-F	2			0500	.62	.65			
CRON	30	0458E	0503	0458E	S05	W20	.341	12323	28.7	5D	-N		V		0458	.70				
ATHN	30	0502E	0514D	0502U	S05	W19	.325	12323	28.8	12D	-F	1	V			.33				DE
18 STATIONS REPORTING GROUP 48379. 0 STATIONS OBSERVING AND NOT REPORTING.																				
GRP48379	30	0552	0745	0601	S05	W22	.374	12323	28.6	113	1B					4.88				6 6 6 7
MITK	30	0550	0655D	0559	S04	W22	.374	12323	28.6	65D	2B		C		0559	9.90	10.60			F
ATHN	30	0551	0740	0559	S05	W23	.390	12323	28.5	109	1B	1	C			3.65				U F
TEHR	30	0552	0745	0600	S06	W23	.390	12323	28.5	113	1B	4	C			3.92				U F
MANI	30	0553	0614D	0604	S05	W22	.374	12323	28.6	21D	1B	2			0604	4.64	5.00			
ABST	30	0553	0603D	0559	S04	W22	.374	12323	28.6	10D	1N		P		0559	3.16	3.40			FZ
CRON	30	0553E	0750	0603	S04	W21	.357	12323	28.7	117D	1N		V		0603	4.00				
48379	30	0555E	0748	0626	S04	W24	.406	12323	28.4	113	*2N					11.45				2 2 2 9
WEND	30	0555E	0742		S04	W24	.406	12323	28.4	107D	2N		P			12.38				
ZURI	30	0620E	0754	0626	S04	W23	.390	12323	28.5	94D	2N		P		0626	10.52	11.50			
48379	30	0632	0743	0640	S04	W21	.357	12323	28.7	71	*-B					2.50				2 2 2 10
UPIC	30	0623E	0739	0640	S03	W21	.358	12323	28.7	76D	-B		P		0640	1.49				I
CAPS	30	0640	0746		S05	W20	.341	12323	28.8	66	1B	3	S		0642	3.50	3.90		(340)	
GRP48380	30	0845	0911	0854	S10	E89	1.000	12336	7.0	26	1N					1.35				4 3 2 10
ATHN	30	0825E	0900	0835U	S10	E90	1.000	12336	7.1	35D	-N	3	V							DE
MONT	30	0836	0907	0855	S11	E87	.998	12336	6.9	31	1N		C		0855	2.27				
UPIC	30	0846	0913	0852	S08	E90	1.000	12336	7.1	27	1N		P		0852	.42				
CAPS	30	0852	0912		S12	E90	1.000	12336	7.1	20	1N	3	V							
GRP48388	30	1620	1634	1624	N13	W84	.996	12322	24.4	14	-N					.28				2 2 1 4
RAMY	30	1619E	1634	1624	N13	W82	.993	12322	24.5	15D	-N	4	C			.28				DE
WEND	30	1620	1634		N12	W85	.998	12322	24.3	14	-N									
GRP48389	30	1737	1808	1743	N14	W88	1.000	12322	24.1	31	-B					1.63				3 2 1 4
RAMY	30	1725	1751D	1729	N13	W85	.998	12322	24.4	26D	-B	4	C			.37				Y
PALE	30	1737E	1808	1743	N14	W85	.998	12322	24.4	31D	1B	3	C			1.63				Y
HUAN	30	1737E	1740D		N13	W90	1.000	12322	24.0	3D	-N	1	P							
391 PALE	30	2006	2019	2011	S15	E89	.999	12336	7.5	13	--F	2	C							F 1
	30	2047	2124	NO FLARE PATROL																
GRP48392	30	2247	2312	2259	N13	W89	1.000	12322	24.3	25	-B					.21				2 2 1 3
PALE	30	2247	2312	2255	N14	W88	1.000	12322	24.3	25	1B	3	C							DE
PALE	30	2247	2312	2301	N14	W88	1.000	12322	24.3	25	1B	3	C							DE
MANI	30	2250E	2305D	2302	N12	W90	1.000	12322	24.2	15D	-N	2			2302	.21	.67			

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MONATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
946 MANI	01	0509	0535	0517	N14	E53	.833	12298	5.2	26	-F	2		0517	.31	.54			3
951 TEHR	01	1053	1103	1055	N12	E55	.846	12298	5.6	10	-N	3	V		.17				DE 5
GRP47952	01	1200E	1240	1219	N14	W53	.833	12280	28.5	40	-F				.93				2 2 2 6
KHAR	01	1200E	1240D		N15	W52	.828	12280	28.6	400	1F		P	1212	1.44	2.50	1.50		D
UPIC	01	1215E	1233D	1219	N13	W54	.840	12280	28.5	180	-F		P	1219	.42				D
953 UPIC	01	1215E	1233D		S06	E10	.173	12293	2.3	180	-F		P	1215	.85				D 6
962 TEHR	02	0410	0420	0413	N12	E40	.693	12298	5.2	10	-F	2	V		.74				DE 3
964 MANI	02	0645	0720	0654	N14	E39	.692	12298	5.2	35	-F	2		0654	.52	.73			3
965 MONT	02	0829	0835	0830	S06	W04	.070	12293	2.1	6	-F		C	0830	.21				9
GRP47966	02	0901	0911	0906	S15	E52	.784	12299	6.3	10	-F				.44				2 2 2 8
ATHN	02	0859	0907D	0904	S16	E52	.785	12299	6.3	80	-N	2	V		.66				DE
MONT	02	0903	0911	0907	S13	E51	.773	12299	6.2	8	-F		C	0907	.21				
968 MONT	02	0946	1021	0956	S04	W03	.068	12293	2.2	35	-F		C	0956	.21				8
971 CANR	02	1204	1227	1206	S05	W02	.043	12293	2.4	23	-N		V	1206	.40	.40			6
975 HUAN	02	1426E	1431U		S05	W03	.058	12293	2.4	50	-F	1	P						5
977 HUAN	02	1529	1529D		S05	W03	.058	12293	2.4		-F	1	P	1529	.41	.41			4
987 MANI	03	0211	0235	0215	N10	W80	.989	12280	28.1	24	-F	2		0215	.52	1.32			3
991 MANI	03	0406E	0411D	0407	S15	E78	.974	12300	9.8	50	-N	1		0407	.41	1.02			3
994 MANI	03	0525E	0540D	0526U	S05	W12	.208	12293	2.3	150	-N	1		0526	.83	.84			4
995 MANI	03	0603E	0618D	0604	S05	W12	.208	12293	2.4	150	-N	1		0604	.52	.52			5
GRP47997	03	0724	0729	0724	S05	W12	.208	12293	2.4	5	-B				.90				2 2 2 6
MANI	03	0722	0727	0723	S04	W11	.195	12293	2.5	5	-N	2		0723	.93	.94			
CATA	03	0725	0730	0725	S05	W12	.208	12293	2.4	5	-B	1		0725	.87	.88		(240)	
000 RAMY	03	1223E	1223D		S15	E68	.921	12300	8.6		-F	2	V						DE 5
001 RAMY	03	1243E	1300	1244U	S04	W18	.310	12293	2.2	170	-F	3	V		.93				DE F 5
002 ATHN	03	1246E	1304	1248	N13	E22	.489	12298	5.2	180	-N	3	V		.33				DE 5
005 CATA	03	1445	1455	1450	S06	W18	.307	12293	2.3	10	-N	3		1450	.29	.30		(182)	5
008 BOUL	03	1619E	1629D	1620	N15	E05	.375	12298	4.1	100	-F		V						4
009 PALE	03	1737E	1745	1740U	S11	E70	.935	12300	9.0	80	-F	5	V		.36				F 3
010 PALE	03	1750E	1753D	1751U	S06	W19	.324	12293	2.3	30	-F	5	V		1.13				DE 3
011 BOUL	03	1836E	1948	1855	S06	W19	.324	12293	2.4	720	1N		V						2
014 MANI	03	2221	2240D	2230	S07	W24	.404	12293	2.1	190	-F	1		2230	.31	.34			3
015 PALE	04	0030E	0044	0030U	S06	W26	.436	12293	2.1	140	-F	2	C		.27				F 4
021 UPIC	04	1159E	1223		S06	W35	.571	12293	1.9	240	-N		P	1208	1.49				D 8
031 MANI	05	0241	0249	0243	S13	E50	.762	12300	8.9	6	-N	2		0243	.52	.80			3
032 TEHR	05	0354E	0407	0354U	N12	W01	.315	12298	5.1	130	-N	2	V		.10				DE 5
034 MANI	05	0704	0710	0706	S13	E48	.740	12300	8.9	6	-N	2		0706	.41	.62			3
035 ARCE	05	0930E	0945D		S16	E47	.731	12300	8.9	150	-N		C	0940	.31	.50			8
036 CANR	05	1043E	1053	1045	N12	W05	.325	12298	5.1	100	-F		V		.40				5
043 MANI	06	0521	0540	0523	N14	W14	.416	12298	5.2	19	-N	2		0523	.62	.68			3
GRP48045	06	0832	0849	0835	S07	W64	.895	12293	1.6	17	-N				.29				2 2 2 8
CATA	06	0830	0850	0835	S07	W63	.887	12293	1.6	20	-N	3		0835	.17	.37		(158)	
CANR	06	0834	0848	0835	S07	W64	.895	12293	1.6	14	-N		V	0835	.40	.80			
046 KHAR	06	0921E	0928D	0922	S03	W63	.890	12293	1.7	70	-F		V				1.80		D 8

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	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH ΔB	MAX. INT. %	
GRP48047	06	1258	1405	1259	S08	W61	.870	12293	2.0	67	-F				.59				2 2 2 7
RAMY	06	1255E	1320D	1258U	S07	W60	.862	12293	2.0	25D	-F	4	V		.31				DE
CATA	06	1300	1405	1300	S08	W62	.879	12293	1.9	65	-N	3		1300	.87	1.82		(162)	
051 CANR	06	1735E	1800	1735E	S13	E48	.740	12306	10.3	25D	1F		V	1735	3.60	5.80			4
056 CAPS	07	1048	1105		S09	E16	.277	12300	8.6	17	-F	2	V	1051	.40	.40		(152)	8
057 CATA	07	1350	1420	1355	N18	W34	.661	12298	5.0	30	-F	3		1355	.58	.77		(138)	6
060 CANR	07	1735	1750	1740	S08	E46	.715	12306	11.2	15	-N		V		1.50				2
L62 MANI	07	2245E	2259D	2245U	S03	W77	.973	12293	2.2	14D	-F	2		2245	.62	1.50			3
GRP48066	08	0257	0305	0301	S08	E03	.061	12300	8.3	8	-N				.36				1 1 1 3
PALE	08	0257	0304	0300	S08	E03	.061	12300	8.3	7	-N	2	C		.27				
PALE	08	0300E	0305	0301U	S09	E04	.085	12300	8.4	5D	-N	2	V		.36				DE
GRP48068	08	0343	0405	0354	S10	E39	.626	12306	11.1	22	-B				1.90				2 2 2 6
KODA	08	0255E	0404D		S08	E38	.612	12306	11.0	63D	1B		P	0359	2.87	2.90			E
MITK	08	0343	0402	0345	S11	E40	.640	12306	11.2	19	-N		C	0345	.93	1.20			D
MITK	08	0353	0405	0354	S11	E39	.627	12306	11.1	12	-N		C	0354	.93	1.20			D
073 ATHN	08	0603	0628	0608	S09	E36	.585	12306	11.0	25	-N	2	C		1.32				F 3
074 MANI	08	0633E	0646D	0633U	S06	E37	.599	12306	11.0	13D	-F	1		0633	.52	.64			4
075 MANI	08	0637E	0645	0639	S08	E01	.037	12300	8.4	8D	-N	1		0639	.52	.52			4
077 MANI	08	0803E	0809D	0803	S08	E00	.033	12300	8.3	6D	-F	1		0803	.31	.31			7
GRP48073	08	0843E	0850	0844	S05	W85	.995	12293	2.0	7	-N				.47				2 2 2 9
ARCE	08	0843E	0846D		S01	W88	.999	12293	1.8	3D	-N		P	0843	.31	1.58			
MANI	08	0843E	0850D	0844	S08	W81	.986	12293	2.3	7D	-N	1		0844	.62	1.63			
GRP48083	08	0924E	0940	0928	S02	W86	.997	12293	1.9	16	-N				1.02				2 2 2 9
KHAR	08	0924E	0942D	0925	N01	W86	.998	12293	1.9	18D	1N		P	0928	1.70		2.60		D
ATHN	08	0927E	0938	0930	S04	W86	.997	12293	1.9	11D	-N	3	V		.33				DE
082 RAMY	08	1117	1129	1118	S08	W03	.061	12300	8.2	12	-F	3	C		.28				DE 8
083 RAMY	08	1125	1138	1126	S03	W86	.997	12293	2.0	13	-N	2	C		.28				DE 8
084 CATA	08	1210	1215	1210	S08	W02	.048	12300	8.4	5	-N	3		1210	.29	.29		(191)	7
086 CATA	08	1315	1320	1315	S09	W02	.061	12300	8.4	5	-N	3		1315	.17	.17		(191)	6
087 BOUL	08	1347E	1352D	1349U	S05	E30	.498	12306	10.8	5D	-N		V						8
088 CATA	08	1400	1400D	1400	S09	W03	.072	12300	8.4		-N	3		1400	.29	.29		(158)	7
092 BOUL	08	1850	1912D	1857U	S02	E35	.576	12306	11.4	22D	-F		V						4
093 BOUL	08	1902	1915D	1906	S05	W90	1.000	12293	2.0	13D	-F		V						4
095 RAMY	08	2208E	2215D	2210U	S08	W07	.125	12300	8.4	7D	-N	1	V		.52				DE 3
099 PALE	08	2333E	2345D	2334U	S08	W07	.125	12300	8.5	12D	-N	2	V		.26				DE 4
101 PALE	09	0045E	0047D	0045U	S04	W90	1.000	12293	2.3	2D	-N	2	V		.21				4
102 PALE	09	0045E	0055D	0055	S09	E29	.483	12306	11.2	10D	-N	2	C		.63				F 5
104 PALE	09	0353E	0354D	0353U	S09	W09	.163	12300	8.5	1D	-F	2	V		.52				F 4
106 ATHN	09	0459	0513D	0502	S10	W11	.201	12300	8.4	14D	-F	1	C		.33				DE 4
107 ATHN	09	0526E	0536	0528	S09	E25	.422	12306	11.1	10D	-N	3	V		.66				F 4
114 BOUL	09	1535E	1540	1535	S07	E20	.340	12306	11.1	5D	-N		V						3
126 BOUL	09	2341E	2350D	2342	S08	E13	.226	12306	11.0	9D	-F		V	2345	.40	.40			4
127 BOUL	09	2359E	0007	0000U	S08	E13	.226	12306	11.0	8D	-N		V	0005	.40	.40			5
GRP48130	10	0731	0746	0738	S08	E13	.226	12306	11.3	15	-F				.50				2 2 1 6
ISTA	10	0731	0746		S08	E13	.226	12306	11.3	15	-F								
TEHR	10	0734E	0745	0738	S07	E12	.207	12306	11.2	11D	-N	3	V		.50				F

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	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H α	MAX. INT. %	
139 BOUL	11	0803E	0026D	0010	S06	W10	.173	12306	10.3	230	-B		V						2
145 MANI	11	0353	0411D	0359	S07	W38	.612	12300	8.3	180	-N	2		0359	.72	.92			3
150 KHAR	11	1053E	1120D		S10	W05	.112	12306	11.1	270	1F		P	1057	2.84	2.80	1.80		EH 6
153 CATA	11	1520E	1535	1525	S15	W37	.608	12300	8.9	150	-F	3		1525	.29	.36		(148)	4
165 BOUL	12	1504E	1515D	1507	S06	W23	.389	12306	10.9	110	-F		V	1507		1.00			3
174 ATHN	13	0541	0548	0542	S08	W66	.910	12300	8.3	7	-F	2	C		.33				DE 6
177 TEHR	13	1201E	1208	1203	S08	W32	.528	12306	11.1	70	-F	3	V		.33				F 6
178 MCMA	13	1326	1342	1330	S08	W34	.557	12306	11.0	16	-N		C	1330	.52	.60			EH 4
181 PALE	13	1651	1659	1653	S08	W35	.571	12306	11.1	8	-F	2	V		.46				F 4
GRP48189	13	2252E	2314	2256	S08	W39	.626	12306	11.0	22	-F				.41				2 2 1 6
BOUL	13	2252E	2302D	2255	S07	W38	.613	12306	11.1	100	-F		V	2255		.50			
MANI	13	2252E	2314D	2257U	S08	W40	.640	12306	11.0	220	-F	2		2257	.41	.54			
190 VORO	14	0110	0153	0117	S12	W42	.668	12306	10.9	43	1N		C	0117	1.57	2.06		64	EJL 3
191 MANI	14	0311E	0313D	0313U	S08	W41	.653	12306	11.1	20	-N	2		0313	.83	1.10			4
192 ATHN	14	0455	0514	0459	S09	W43	.679	12306	11.0	19	-F	1	C		.33				DE 6
193 ATHN	14	0544E	0613	0544U	S07	W47	.728	12306	10.7	230	-F	1	C		.50				F 5
194 ATHN	14	0625	0637	0628	S08	W44	.691	12306	11.0	12	-N	3	C		.83				F 6
197 RAMY	14	1158E	1210D	1158U	S09	W46	.716	12306	11.0	120	-F	3	V		.23				DE 4
199 RAMY	14	1320	1339	1323U	S12	W80	.982	12300	8.6	19	-F	4	V		.37				DE 6
GRP48201	14	1640E	1648	1640	S10	W48	.740	12306	11.1	8	-F				.31				2 2 1 5
RAMY	14	1640E	1646	1640U	S11	W45	.705	12306	11.3	60	-F	3	V		.31				DE
HUAN	14	1640E	1649		S09	W51	.773	12306	10.9	90	-F	1	P						C
202 PALE	14	1750	1756	1751	S08	W52	.784	12306	10.8	6	-N	3	V		.21				4
218 MONT	16	1203	1208	1205	S08	W76	.968	12306	10.8	5	-N		C	1205	.21				D 7
219 MCMA	16	1309E	1313D		S10	W77	.971	12306	10.8	40	-N		P	1309	.31	1.00			D 8
225 MANI	18	0439E	0455	0439U	N11	E84	.996	12322	24.5	160	-N	2		0439	.62	1.73			4
227 HUAN	18	1417U	1427	1423	N10	E77	.979	12322	24.4	100	-F	1	C	1423	.15				DT 5
229 HUAN	18	1504U	1521D		N10	E77	.979	12322	24.4	170	-F	1	P						D 6
233 MANI	19	0002	0004D	0003	N11	E68	.937	12322	24.1	20	-N	2		0003	.31	.65			3
234 MANI	19	0126E	0133D	0126U	N11	E69	.943	12322	24.2	70	-N	2		0126	.62	1.33			4
235 MANI	19	0143E	0150	0144	N14	E71	.956	12322	24.4	70	-N	2		0144	.31	.70			4
242 HUAN	19	1330	1336		N11	E64	.912	12322	24.4	6	-F	1	C	1332	.15	.35			D 5
247 MANI	20	0209	0225	0214U	N12	E57	.859	12322	24.4	16	-N	2		0214	.41	.75			3
249 MANI	21	0052E	0105	0052U	N13	E42	.713	12322	24.2	130	-N	1		0052	.41	.60			4
254 CAPS	21	1512	1522		N10	E38	.653	12322	24.5	18	-F	2	V	1520	.70	1.10		(149)	5
261 MANI	22	0205E	0218D	0218U	N13	E31	.583	12322	24.4	130	-N	2		0218	.52	.64			3
263 ARCE	22	0808E	0850D		N12	E24	.490	12322	24.1	500	-N		C	0800	.57	.60			6
265 TEHR	22	1227E	1239	1227U	N13	E25	.510	12322	24.4	120	-F	3	V		.17				DE 4
266 BOUL	22	1325	1343D	1329U	S03	E89	1.000	12323	29.2	180	-N		V						7
269 BOUL	22	1741	1752	1744	N14	E24	.507	12322	24.5	11	-N		V						3
273 BOUL	22	2048	2059	2049	S00	E87	.999	12323	29.4	11	-N		V	2050	.40	1.50			2
274 BOUL	22	2135	2148D	2138	S03	E85	.996	12323	29.3	130	-F		V	2140	.30	1.10			3

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	DATE 1973 APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH °	MAX. INT. %	
GRP48277	22	2303	2313	2304	S03	E86	.997	12323	29.4	10	-N				.31				2 2 2 4
MANI	22	2302E	2310	2305	S03	E87	.998	12323	29.5	8D	-N	1		2305	.41	1.24			
BOUL	22	2303	2315D	2303	S03	E85	.996	12323	29.3	12D	-N		V	2310	.20	.75			
GRP48280	23	0351	0404	0353	S04	E79	.981	12323	29.1	13	-N				.47				2 2 2 6
MANI	23	0351	0402	0353	S04	E79	.981	12323	29.1	11	-N	2		0353	.52	1.30			
TEHR	23	0352E	0405	0352	S03	E79	.981	12323	29.1	13D	-N	3	C		.41				F
282 MANI	23	0754E	0803	0754U	S08	E76	.968	12323	29.0	9D	-N	1		0754	.31	.73			9
283 MANI	23	0754E	0806	0755U	S15	W25	.447	12321	21.5	12D	-N	1		0755	.41	.46			10
284 MANI	23	0925E	0930	0925U	S15	W26	.461	12321	21.4	5D	-N	1		0925	.31	.34			8
285 CATA	23	1225E	1235	1230	N14	E12	.381	12322	24.4	10D	-N	3		1230	.29	.31		(155)	7
302 MANI	25	0401	0430	0407	S15	W53	.799	12321	21.2	29	-F	2		0407	.52	.83			7
GRP48304	25	0455	0535	0511	N15	W11	.384	12322	24.4	40	-F				.59				2 2 2 6
MANI	25	0455	0540	0507	N14	W11	.370	12322	24.4	45	-F	2		0507	.52	.56			
ATHN	25	0513E	0530	0514	N15	W11	.384	12322	24.4	17D	-N	2	V		.66				F
305 MANI	25	0720	0730	0721U	S07	E55	.816	12323	29.4	10	-F	2		0721	.31	.52			6
GRP48307	25	0817	0831	0821	N13	W16	.404	12322	24.1	14	-F				.31				2 2 2 9
CRON	25	0816E	0826		N12	W13	.361	12322	24.4	10D	-F		V		.40				
MANI	25	0817	0835	0821	N13	W19	.437	12322	23.9	18	-F	2		0821	.21	.23			
309 MANI	25	0940E	0950D	0942U	S03	E50	.765	12323	29.2	10D	-N	1		0942	.31	.48			7
310 MANI	25	0942E	0950D	0942U	S03	E41	.655	12323	28.5	8D	-N	1		0942	.31	.41			7
311 TEHR	25	1040E	1048D	1042U	N13	W14	.384	12322	24.4	8D	-N	3	V		.41				F 5
315 RAMY	25	1510E	1520D	1514U	N14	W17	.426	12322	24.4	10D	-N	4	V		.33				DE 6
322 CRON	26	0224E	0233		S03	E42	.668	12323	29.3	9D	-F		V		.70				3
326 HUAN	26	1339	1347	1340	S09	E26	.441	12323	28.5	8	-F	2	C	1340	.41	.46			E 6
331 MANI	26	2248E	2259	2250	S00	E26	.444	12323	28.9	11D	-N	1		2250	.21	.23			3
336 CAPS	27	0821	0835		S08	E14	.247	12323	28.4	14	-N	4	V	0826	.40	.40		(190)	C 11
GRP48341	27	1520	1600	1523	S06	E09	.158	12323	28.3	40	-F				.52				2 1 1 6
RAMY	27	1520E	1600D	1523U	S06	E09	.158	12323	28.3	40D	-F	4	V		.52				DE
CAPS	27	1545	1600		S07	E13	.228	12323	28.6	15	-N	3	S	1546	.80	.80		(170)	
342 PALE	27	2328E	2343	2332	S06	E10	.175	12323	28.7	15D	-F	2	C		.36				F 5
344 MANI	28	0431E	0441D	0431U	S04	E01	.019	12323	28.3	10D	-F	2		0431	.41	.41			7
345 MANI	28	0535E	0602D	0537U	S08	E05	.106	12323	28.6	27D	-F	2		0537	.72	.73			5
GRP48347	28	0750	0809	0755	N13	W52	.814	12322	24.4	19	-N				.41				2 2 2 6
UPIQ	28	0750	0809D	0755	N13	W51	.805	12322	24.5	19D	-F		P	0755	.42				
CANR	28	0751E	0755D		N12	W53	.821	12322	24.4	4D	-B		V	0751	.40	.60			
348 MONT	28	0816	0827	0818	N01	E08	.168	12323	28.9	11	-N		C	0818	.21				E 7
350 RAMY	28	1106	1126	1109	S15	E09	.238	12323	29.1	20	-F	3	C		.28				DE 5
352 RAMY	28	1408E	1420	1409U	N13	W54	.833	12322	24.5	12D	-F	3	V		.67				DE 5
358 BOUL	28	2103E	2106D	2103	N13	W58	.868	12322	24.5	3D	-F		V	2103		.75			4
360 MANI	28	2345	2353	2346	N15	W63	.909	12322	24.3	8	-N	2		2346	.72	1.42			4
364 MANI	29	0601	0607D	0603	N13	W66	.926	12322	24.3	6D	-F	2		0603	.31	.63			5
367 RAMY	29	1044E	1050D		S00	W03	.093	12323	29.2	6D	-F	3	V						DE 8
GRP48368	29	1325	1340	1327	S01	W07	.135	12323	29.0	15	-N				.80				2 2 2 7
RAMY	29	1325	1340D	1329	S00	W06	.129	12323	29.1	15D	-N	4	V		.72				U
CATA	29	1325	1330D	1325	S01	W08	.151	12323	29.0	5D	-N	3		1325	.87	.87		(195)	
369 MCMA	29	1335E	1415		N12	W72	.958	12322	24.2	40D	-N		C	1337					BE 7
376 MANI	30	0150E	0216	0154	S02	W19	.327	12323	28.7	26D	-F	2		0154	.41	.44			3
378 TEHR	30	0459	0505	0459	N12	W74	.967	12322	24.7	6	-N	3	C		.19				DE 5

SOLAR FLARES
Unconfirmed

APRIL 1973

OBSERVATORY	DATE APR	OBSERVED UT START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. CONF.	OBS. TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
381 MONT	30	0956	1035	0958	S11	E87	.998	12336	6.9	9	-N		C	0958	.21				9
GRP48382	30	1043E	1103	1048	N13	W83	.995	12322	24.2	20	-N				.21				2 2 1 9
MONT	30	1043E	1054	1049	N13	W82	.993	12322	24.3	110	-N		C	1049	.21				
ATHN	30	1046E	1112	1046U	N12	W84	.996	12322	24.1	26D	-N	3	V						F
383 UPIC	30	1045	1057U		S13	E56	.828	12339	4.6	12D	-F		P		.42				9
GRP48384	30	1107	1125	1111	S11	E88	.999	12336	7.1	18	-N				.32				2 2 2 8
MONT	30	1102	1116	1111	S11	E86	.997	12336	6.9	14	-N		C	1111	.21				
UPIC	30	1111	1134		S10	E90	1.000	12336	7.2	23	1N		P		.42				
385 UPIC	30	1247	1303		N11	W87	.999	12322	24.0	16	1N		P		.42				7
GRP48386	30	1332	1344	(1334)	N10	W86	.998	12322	24.1	12	-B				.63				2 2 1 6
UPIC	30	1330	1345		N08	W86	.998	12322	24.1	15	1B		P	1334	.63				
WEND	30	1334	1343		N12	W85	.998	12322	24.2	9	-N								
GRP48387	30	1533	1545	1536	S14	E90	1.000	12336	7.4	12	-N								1 1 0 5
RAMY	30	1533	1543	1536	S14	E90	1.000	12336	7.4	10	-N	4	C						
RAMY	30	1535E	1545D	1538	S15	E90	1.000	12336	7.4	10D	-N	4	V						DE
390 RAMY	30	1740E	1800	1750U	S14	E87	.998	12336	7.3	12D	-N	4	V		.19				DE 3
393 MANI	30	2256E	2305D	2255	S14	E86	.996	12336	7.4	15D	-F	2		2255	.21	.60			3
394 PALE	30	2322	2323D		S07	W30	.500	12323	28.7	1D	-N	3	V						F 3

"Remarks":

A = Eruptive prominence, base at >90°.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (‖ or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note:
A line of explanation has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses. For Flares reported by only one station the last 3 digits of the group number appear to the left of the station code.

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

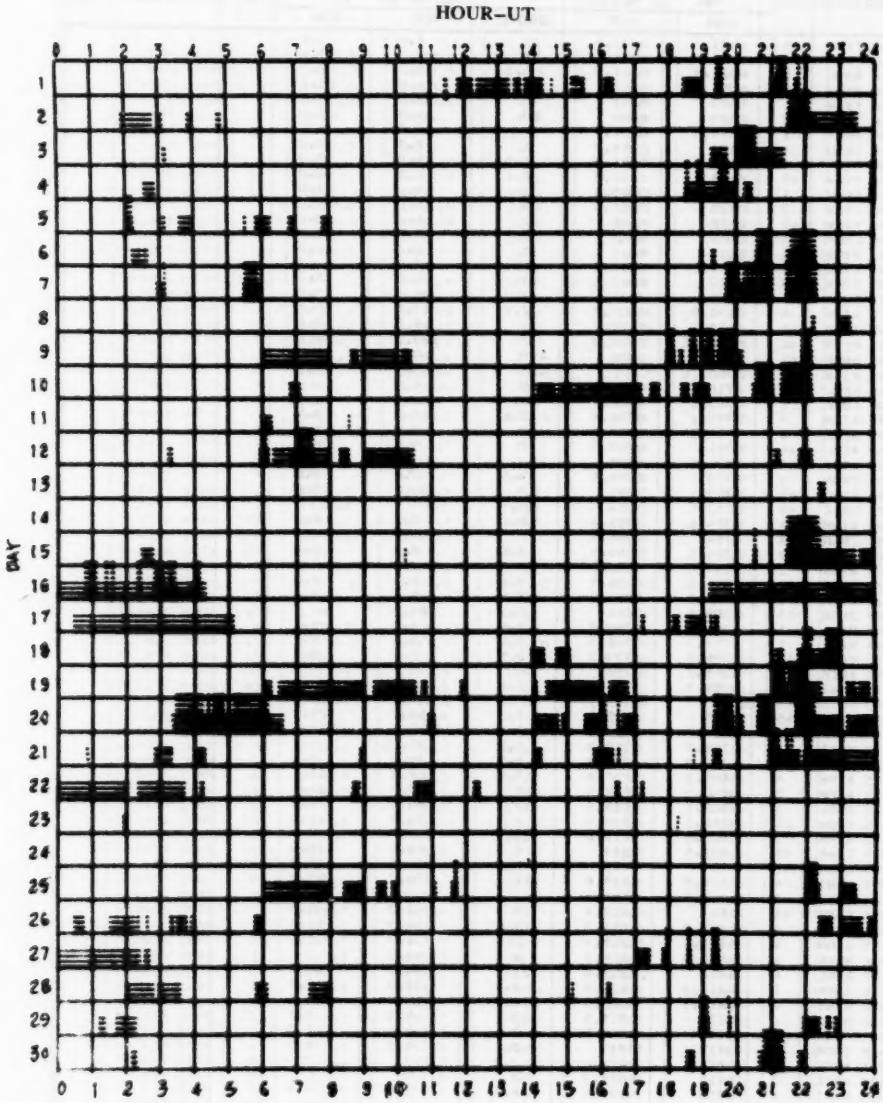
Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
45 730401	235.89	23.2	45 730411	87.53	24.0	45 730421	7.65	23.4
45 730402	58.52	23.4	45 730412	24.49	23.2	45 730422	27.57	24.0
45 730403	20.64	23.4	45 730413	8.79	24.0	45 730423	1.17	24.0
45 730404	21.91	23.4	45 730414	19.85	24.0	45 730424	18.15	24.0
45 730405	4.47	23.8	45 730415	3.48	22.9	45 730425	43.99	23.8
45 730406	7.45	22.9	45 730416	2.73	22.4	45 730426	34.91	24.0
45 730407	23.58	21.3	45 730417	0.38	24.0	45 730427	17.16	23.6
45 730408	64.73	24.0	45 730418	2.31	23.3	45 730428	21.00	24.0
45 730409	22.47	22.5	45 730419	5.33	23.2	45 730429	71.99	23.9
45 730410	215.95	22.5	45 730420	0.00	20.0	45 730430	149.97	23.4

When no Flare Index is given, it is 0 for that day.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

APRIL 1973



Observatories included in total patrol:

Abastumani	Capri-F (German)	Herstmonceux	Kodaikanal	Mitaka	Tehran
Arcetri	Capri-S (Swedish)	Huancayo	Locarno	Monte Mario	Upice
Athenes	Catania	Istanboul	Manila	Palehua	Voroshilov
Bucharest	Culgoora	Kharkov	McMath-Hulbert	Ramey	Wendelstein
	Gran Canaria	Kiev	Meudon	Tachkent	Zürich

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1973

APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
1	2000	TYKW	45	0021	0025.5	11	5.0	1.0		
	1420	CRON	8	0021.5	0022	1	9.0	3.0		
	1420	BOUL	8	0021.5	0022.5	1.5	5.0	2.0		
	1000	TYKW	1	0021.8	0022	.5	4.0	1.0		
	9400	TYKW	20	0023	0032	30	5.0	2.0		
	3750	TYKW	20	0023	0030	20	3.0	1.0		
	2695	PENT	8	0034.5	0034.5		10.0			
	9750	IRKU	1	0456	0456.9	2	2.3	8.0		
	9400	TYKW	1	0456	0456.7	1.5	9.0	3.0		
	3750	TYKW	45	0456	0456.8	8	4.0	1.0		
	9750	IRKU	1	0515.9	0515.5	3	5.0	12.0		
	9400	TYKW	3	0515	0515.4	4	11.0	3.0		
	3750	TYKW	45	0515	0516	2	5.0	2.0		
	2695	CRON	3	0609	0610	2	6.0	2.0		
	3750	TYKW	1	0610	0611	2	2.0	1.0		
	2695	ATHN	1	0610.3	0611.2	1.6	2.3	.7		
	2000	TYKW	3	0610	0611.1	3	15.0	3.0		
	1420	CRON	45	0610	0611	2	19.0	5.0		
	1415	ATHN	4	0610.3	0611.2	2.4	17.8	5.4		
	1000	TYKW	45	0610	0611.1	3	48.0	9.0		
	113	POTS	40	0610.4E	0611.2	2 D	110.0	10.0		
	260	ONDR	41	0650	0800	490	40.0			
	204	KIEV	42	0700 E		480 D	40.0	6.0		
	9500	BERL	21	0710	0757	165	4.1			
	9100	GORK	1	0743.8	0746.7	4.4U	13.8	6.9		
	4995	ATHN	4	0750.2	0756.4	11.6	13.0	3.7		
	3000	BERL	4	0751.5	0757.3	12	7.6	2.7		
	1500	BERL	46	0751	0757.7	10	7.4	2.9		
	9285	ARCE	21	0753.2	0838	103				
	2695	CRON	3	0753	0754.5	3.5	7.0	2.0		
	930	BORD	45	0753	0756	7	92.0	5.0		
	29	UPIC	45	0753.5	0754	6.5				
	8800	ATHN	1	0754.6	0756.6	8.1	3.2	1.1		
	4995	CRON	3	0754	0755.5	3	6.0	2.0		
	2695	CANR	45	0754.5	0756.5	3.5	8.0	2.0		
	2695	ATHN	1	0754.9	0756.5	7.8	4.7	1.4		
	1420	CRON	45	0754.5	0756.5	2.5	6.0	2.0		
	1415	ATHN	1	0754.8	0756.9	3.5	5.9	1.6		
	808	ONDR	45	0754.5	0756	5.5	80.0			
	606	MANI	1	0754.7	0756.7	3.6	2.7	1.1		
	2695	MANI	1	0755.7	0755.3	2.6	4.6	1.2		
	1420	CANR	45	0755.5	0757.5	2.5	5.0	2.0		
	1420	ARCE	40	0755.1	0756	4				
	1415	MANI	1	0755.7	0756.2	1.9	2.6	.9		
	113	POTS	45	0755	0755.1	.8	150.0	10.0		
	100	HIRA	45	0755	0755.1	1.2	60.0	25.0		
	23	POTS	45	0755.2	0755.6	3.8	10000.0	1500.0		
	237	TRST	41	0758.7	0759.3	1.2	130.0D			
	221	ABST	3	0758.2	0758.8	1.2	30.0	5.0		
	4995	ATHN	4	0809.2	0817.3	17.3	69.8	25.1		
	8800	ATHN	3	0810.3	0812.3	30	72.9	21.1		
	3000	BERL	4	0810.5	0813.5	32	40.0	4.3		
	2695	CRON	45	0810.5	0812.5	6	32.0	10.0		
	2695	ATHN	3	0810.6	0812.6	35.7	37.4	9.4		
	4995	CANR	45	0811.5	0813	14	54.0	19.0		
	4995	CRON	45	0811	0813	6.5	60.0	20.0		
	4995	MANI	4	0811.8	0813.8	13.5	70.0	23.0		
	2830	ARCE	3	0811.8	0813.5					
	2695	CANR	45	0811	0812.5	14	42.0	9.0		
	2695	MANI	4	0811.8	0813.7	13.5	34.5	11.5		
	1415	ATHN	4	0811.3	0812.3	3.6	4.9	1.6		
	10500	BERN	4	0812.9	0813.2	8	62.0			
	9500	BERL	4	0812	0813.4	21	58.0	14.0		
	9100	GORK	3	0812.9	0813.5	8.4	79.0	31.0		
	8800	MANI	4	0812.3	0813.3	16.1	113.0	29.1		
	1500	BERL	3	0812	0813.5	22	5.9	1.1		
	1420	CANR	3	0812	0813.5	3	4.0	1.0		
	1420	CRON	3	0812	0813	2.5	8.0	3.0		
	9285	ARCE	3	0813	0813.6	1.7				
	1420	ARCE	1	0813	0813.7	2				
	1415	MANI	2	0813	0813.3	6.5	1.8	.9		
	9285	ARCE	29	0814.7		16.6				
	9100	GORK	29	0814.7	0816	6.6	11.5	6.0		
	1420	ARCE	29	0815		10				
	2800	OTTA	21	1155	1215	275	4.0	2.0		
	2800	OTTA	20	1315	1330	40	1.8	1.0		
	4995	CANR	3	1329.5	1330.5	2	5.0	2.0		
	7000	SAOP	2	1330.2	1331	3.5	5.2	2.6		
	245	SGMR	6	1338.8	1339.2	1.9	45.2	18.2		
	410	SGMR	6	1339.1	1339.2	.2	.9	.4		
	234	POTS	45	1339.3	1339.4	.1	100.0	20.0		
	113	POTS	45	1339.2	1339.3	.3	150.0	30.0		
	2800	OTTA	21	1355	1405	65	4.6	2.3		
	8800	SGMR	4	1359	1402.2	9 U	14.6	6.0U		
	2695	SGMR	1	1400.9	1402.2	5.1U	5.4	2.7U		
	4995	SGMR	1	1401.4	1402.2	6.6U	8.2	4.1U		
	2695	BOUL	3	1401.5	1402.5	2	4.0	1.0		
	2695	CANR	45	1401	1401.5	5	5.0	2.0		
	7000	SAOP	23	1426.2	1449.5	55 U	12.8			
	7000	SAOP	22	1426.2		55 U	7.7			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1973

APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2695 CANR	3	1447.5	1448.5	2.5	3.0	1.0		
	7000 SAOP	2	1448.3	1449.5	3.3	7.7	4.1		
	4995 CANR	3	1448	1449	2.5	7.0	3.0		
	2800 OTTA	1	1448.8	1449.5	4	2.0	1.0		
	4995 BOUL	8	1504	1506	4.5	70.0	24.0		
	2800 OTTA	20	1505	1510	17	1.8	0.9		
	2695 CANR	3	1508.5	1510	4	3.0	1.0		
	4995 CANR	3	1509	1509.5	6	5.0	2.0		
	9285 ARCE	21	1525.1	1534.3	46.5				
	2800 OTTA	21	1528	1533	20	4.2	2.1		
	4995 SGMR	3	1529.6	1536.4	18.7	51.3	20.3		
	2695 SGMR	3	1529.3	1536.2	18.4	24.1	10.0		
	4995 CANR	3	1530	1536	17.5	45.0	16.0		
	2800 OTTA	1	1530.5	1531	1	2.6	1.3		
	2700 PENN	28	1530	1531.2	5.2	7.5	4.2		
	15400 SGMR	20	1531.1	1536.4	10.4	14.0	6.8		
	8800 SGMR	3	1531.4	1536.5	17.5	36.7	14.4		
	2700 PENN	8	1532.2	1532.3	.2	12.9			
	960 PENN	8	1532.2	1532.3	.2	190.0			
	2695 CANR	8	1534.5	1536.5	5	25.0	10.0		
	10500 BERN	3	1535.9	1536.4	3	20.0			
	9400 HUAN	4	1535.1	1536.4	9	27.0	7.7		
	9285 ARCE	3	1535.1	1536.6	7				
	8800 ATHN	3	1535.9	1536.5	3.9	26.0	6.9		
	4995 ATHN	3	1535 U	1536.5	18 U	47.4	9.3U		
	2830 ARCE	3	1535.8E	1536	2 U				
	2800 OTTA	3	1535	1536.1	5	27.0	7.0		
	2700 PENN	3	1535.2	1536.1	3.5	40.8	17.1		
	2695 BOUL	8	1535	1536.5	6	23.0	9.0		
	2695 ATHN	3	1535.7	1536.5	3.4	21.1	7.0		
	1415 ATHN	1	1535.6	1536.5	2.4	2.2	.8		
	2700 PENN	29	1538.7	1538.7	14.9	6.4	3.2		
	2700 PENN	24	1649.8	1850.6		22.1			
	2800 OTTA	21	1655	1715	40	2.0	1.0		
	245 SGMR	6	1659.8	1709.6	27.5	38.9	9.0		
	2700 PENN	3	1700 U	1706.1	23 D	55.0D			
	2695 CANR	45	1700	1705.5	17.5	46.0	15.0		
	1420 BOUL	45	1700	1706	16.5	75.0	20.0		
	1415 SGMR	4	1700.2	1705.3	22.9	113.0	25.0		
	960 PENN	45	1700 U	1711.9	17 D	59.0D			
	930 BORD	45	1700	1712	23	115.0	12.0		
	4995 CANR	45	1701.5	1705.5	16.5	29.0	8.0		
	2695 BOUL	45	1701.5	1706.5	12.5	40.0	13.0		
	606 SGMR	46	1701.2	1711.9	18.6	27.6	8.0		
	606 SGMR	46		1712.4		28.3			
	8800 SGMR	20	1702.7	1706.1	22.3	21.6	8.0		
	4995 SGMR	3	1702.2	1706.3	12.6	30.1	10.0		
	2800 OTTA	4	1702	1706	12	43.0	11.2		
	2695 SGMR	4	1702.5	1706.1	12.7	40.7	12.0		
	1420 CANR	45	1702.5	1705.5	11.5	57.0	15.0		
	410 SGMR	6	1702	1711.6	17.3	18.5	6.0		
	15400 SGMR	20	1703.6	1711.7	17.1	13.9	5.0		
	9400 HUAN	20	1703.7		20.2		4.1		
	4995 BOUL	45	1703	1705.5	5	36.0	11.0		
	245 BOUL	41	1703	1705	12			1	
	4995 CANR	8	1746	1747	2.5	11.0	4.0		
	4995 BOUL	8	1746.5	1747	2.5	16.0	4.0		
	2800 OTTA	3	1746.5	1747.5	5	10.0	2.5		
	2700 PENN	3	1746.6	1747.6	3.4	15.3	2.0		
	2695 SGMR	2	1746.9	1747.7	3.9	8.0	2.0		
	4995 SGMR	2	1747.1	1747.7	2.7	8.6	2.1		
	2695 BOUL	8	1747	1748	3	11.0	4.0		
	1420 CANR	8	1747.5	1748	2.5	6.0	2.0		
	1420 BOUL	8	1747	1747.5	3	6.0	2.0		
	1415 SGMR	1	1747.3	1747.7	4.2	5.3	1.3		
	960 PENN	1	1747	1747.7	4	5.3	1.1		
	606 SGMR	4	1747.1	1747.6	2.6	28.3	7.0		
	410 SGMR	6	1747.4	1747.7	1.4	38.3	9.5		
	2695 CANR	8	1755.5	1756.5	3.5	8.0	3.0		
	245 SGMR	6	1801.6	1803.3	2.5	164.0	30.0		
	2800 OTTA	22	1810	1855	220	3.0	1.5		
	208 VORO	44	2120	2318.5	220	21.6	14.0		
	245 BOUL	42	2127	2303	210 D			1	
	4995 BOUL	3	2155	2156	2	11.0	4.0		
	2800 OTTA	21	2200	2215	120	3.8	1.9		
	9400 HUAN	22	2202.3	2224.7	28.1	23.6	6.3		
	3750 TYKW	45	2202	2202.7	6	10.0	4.0		
	2800 OTTA	1	2202	2202.5	8	6.8	3.8		
	2695 BOUL	45	2202.5	2203.5	7.5	7.0	2.0		
	2000 TYKW	1	2202	2202.7	6	4.0	2.0		
	1420 BOUL	45	2202	2203.5	7.5	4.0	2.0		
	1415 SGMR	4	2202.4	2207	8.8	10.4	2.0		
	1000 TYKW	45	2202	2205	8	3.0	2.0		
	606 SGMR	40	2202.4	2204.2	8.6	14.5	3.0		
	100 HIRA	5	2212.5	2216.7	6	190.0	70.0		
	100 HIRA	45	2258.5	2259.6U	5	50.0	15.0		
2	9750 IRKU	1	0217.2	0217.8	4	4.0	19.0		
	9400 TYKW	3	0217.5	0217.8	2	23.0	7.0		
	9750 IRKU	1	0410.2	0410.8	2	4.5	9.0		

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2	9400	TYKW	1	0410	0410.8	3	5.0	2.0		
	3750	TYKW	1	0410	0410.8	2	5.0	2.0		
	2000	TYKW	1	0410.6	0410.8	.4	2.0	1.0		
	29	UPIC	45	0639.5	0640	1				
	260	ONDR	44	0640	1039	510	60.0			
	221	ABST	41	0700	0750.2	165	11.0			
	204	KIEV	42	0700 E		480 D	19.0	6.0		
	29	UPIC	45	0729	0729.5	1				
	210	IZMI	41	0741	0750	10	170.0			
	29	UPIC	45	0907	0907.5	1.5				
	9500	BERL	20	0920	0959	130	6.9			
	3000	BERL	22	0929	0952	183	7.6			
	1500	BERL	41	0951.5	0953.7	2.5	2.2			
	29	UPIC	45	1207	1207.5	1.5				
	2800	OTTA	20	1240	1247	35	2.4	1.7		
	245	BOUL	42	1253	1327	45				
	9400	HUAN	20	1302.9	1330.3	100.9	12.0	3.6		
	9500	BERL	22	1306.5	1329	70	8.3			
	3000	BERL	22	1319	1329	26	5.4			
	7000	SAOP	42	1320.1		56.9	14.3			
	7000	SAOP	22	1320.1		21.3	12.0			
	2800	OTTA	20	1320	1325	90	4.8	2.4		
	1420	ARCE	22	1321.7	1328.2	24				
	1500	BERL	40	1322	1327.9	23	5.6	1.5		
	1420	CANR	45	1322.5	1328.5	9.5	4.0	1.0		
	1415	ATHN	20	1322.3	1324.6	12.3	4.3	1.6		
	9285	ARCE	22	1323.8E	1330.9	70 U				
	7000	SAOP	22	1341.4		17.8	14.3			
	29	UPIC	45	1342	1342.5	2				
	7000	SAOP	22	1359.2		18.7	9.6			
	2800	OTTA	21	1500	1640	180	4.8	2.4		
	2800	OTTA	20	1525	1529	25	1.8	0.9		
	2800	OTTA	8	1614.5	1614.5		1.7			
	245	BOUL	42	1527	1651	120			2	
	245	SGMR	43	1529.5	1557	456.5D	97.2			
	245	BOUL	42	1818	1851	152			1	
	960	PENN	24	1913.4	2142.6		3.3			
	2800	OTTA	25	1920		20	3.6			
	10700	PENN	24	1922.1	2108.6		12.8			
	2700	PENN	24	1922.1	2100.5		13.3			
	2800	OTTA	1	1939.5	1940	2	1.8	0.9		
	2800	OTTA	20	2045	2110	60	2.8	1.4		
	245	BOUL	41	2112	2119	22			1	
	100	HIRA	45	2141	2141	1	130.0	40.0		
	2695	BOUL	8	2257	2257.5	1	6.0	2.0		
	245	BOUL	42	2348	0016	67 D			2	
	208	VORO	44	2350	0014	70	16.0	9.0		
	4995	BOUL	8	2356.5	2357	1.5	22.0	7.0		
	4995	MANI	3	2356.8	2357.7	1.8	14.8	4.4		
	3750	TYKW	1	2357	2357.7	1	8.0	3.0		
	2695	PENT	1	2357	2357.6	1.5	5.0	2.5		
	2695	MANI	1	2357.3	2357.7	1.1	2.3	1.2		
	2000	TYKW	1	2357	2357.7	3	4.0	1.0		
	3750	TYKW	29	2358		7	2.0	1.0		
3	3750	TYKW	1	0055	0056.3	7	3.0	1.0		
	2000	TYKW	1	0055	0056	2	2.0	1.0		
	3750	TYKW	1	0244.5	0244.9	.8	2.0	1.0		
	3750	TYKW	20	0420	0445	70	6.0	3.0		
	100	HIRA	5	0458	0458.2	1	140.0	50.0		
	100	HIRA	45	0501	0501.5	1	70.0	20.0		
	260	ONDR	44	0700	1111	490	110.0			
	221	ABST	41	0700	1022	211.5	9.0			
	204	KIEV	44	0700 E		540 D	40.0	7.0		
	245	SGMR	44	1027 E	1111.1	761 D	77.9			
	245	BOUL	43	1402	2059	523			2	
	9500	BERL	21	0756	0801.5	29	12.0			
	9285	ARCE	22	0756.7	0801.8	88 U				
	1420	ARCE	20	0757.2	0801.7	27 U				
	8800	MANI	4	0800.8	0801.5	5.7	21.0	6.3		
	8800	ATHN	3	0800.6	0801.6	14.9	14.8	3.3		
	4995	MANI	4	0800	0801.5	5.7	26.9	4.7		
	3000	BERL	4	0800	0801.8	20	11.0			
	2695	CRON	3	0800.5	0801.5	5	7.0	3.0		
	2695	MANI	2	0800	0801.5	5.7	7.1	2.4		
	1500	BERL	1	0800	0802	5	1.6			
	1420	CRON	8	0800.5	0801.5	3.5	7.0	2.0		
	1415	ATHN	1	0800.6	0802	5.1	2.7	1.1		
	2695	ATHN	1	0801.3	0801.6	5.5	9.1	3.4		
	8800	MANI	3	0812.4	0812.9	1.7	16.8	4.2		
	4995	MANI	1	0812.4	0812.9	1.7	7.9	1.6		
	2695	MANI	1	0812.3	0812.9	1.8	5.9	1.2		
	1415	MANI	1	0812.3	0812.9	1.8	2.7	.9		
	210	IZMI	6	0823.2	0823.3	.5	210.0	160.0		
	237	TRST	41	1111	1111	.4	310.0			
	18	MCMA	6	1119	1121	2			2	
	2800	OTTA	24	1140		65	5.4			
	113	POTS	41	1207.7	1207.7	9.5	180.0	1.0		
	23	POTS	45	1207.7	1207.8	.4	10000.0	1500.0		
	7000	SAOP	22	1318.2		30.4	7.4			

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3	29	UPIC	45	1352	1352	2				
	23	POTS	45	1352.2E	1353 D	2.5D	7000.0	1000.0		
	930	BORD	5	1402	1402	1	18.0	1.0		
	2800	OTTA	24	1405		5	1.9			
	2800	OTTA	22	1410	1530	110	4.2	2.1		
	18	MCMA	6	1450	1452	3			1	
	4995	BOUL	8	1521.5	1522.5	2.5	17.0	5.0		
	8800	ATHN	1	1522.9	1523.5	2.5	7.0	3.5		
	4995	CANR	8	1522	1522.5	3	11.0	4.0		
	2700	PENN	3	1522.9	1523.4	10.4	12.6	3.2		
	2695	CANR	45	1522	1522.5	3.5	6.0	2.0		
	2695	SGMR	1	1522.7	1523.3	2.8	5.7	1.6		
	2695	ATHN	1	1522.9	1523.5	2.5	2.3	.7		
	960	PENN	8	1522.9	1523.2	.4	67.1			
	930	BORD	45	1522	1523	2	264.0	2.0		
	8800	SGMR	3	1523	1523.5	6.2	11.8	3.2		
	4995	SGMR	3	1523	1523.4	4.3	12.2	3.4		
	2800	OTTA	2	1523	1523.5	4.5	5.8	2.7		
	2695	BOUL	3	1523.5	1524	1.5	6.0	2.0		
	18	MCMA	41	1524	1527	7			1	
	410	SGMR	6	1525.7	1526.3	1.2	6.8	1.6		
	2695	BOUL	3	1526.5	1527	1	2.0	1.0		
	245	SGMR	6	1526	1526.3	4.5	250.0	25.0		
	237	TRST	42	1526.1	1526.3	4	680.0			
	8800	ATHN	1	1546.6	1550.2	4.8	7.0	1.8		
	4995	ATHN	1	1546.4	1550.2	5.7	7.4	2.8		
	2695	ATHN	1	1549.5	1550.3	1.7	2.3	.7		
	1415	ATHN	1	1549.5	1550.2	1.6	2.2	1.1		
	4995	SGMR	20	1621.7	1625.4	11.2	4.0	1.5		
	8800	SGMR	1	1623.8	1625.6	5.4	4.4	2.0		
	15400	SGMR	1	1625.4	1627.6	5.5	5.9	2.0		
	930	BORD	41	1633	1634.7	2	9.0	2.0		
	9400	HUAN	20	1731	1800.4	39.6	14.2	5.3		
	4995	SGMR	20	1812.7	1818.7	13.6	5.0	1.4		
	2695	SGMR	20	1813.5	1821	12.3	2.1	.6		
	1420	CANR	3	1818.5	1820.5	4	4.0	1.0		
	8800	SGMR	23	1822.1	1901	110.9	13.4	6.0		
	606	SGMR	20	1836.8	1842.2	10.5	1.3	.5		
	4995	SGMR	23	1840.1	1936.5	93.7	12.2	5.0		
	2800	OTTA	21	1840	1915	130	6.2	4.0		
	15400	SGMR	22	1841.6	1852.9	23.1	12.2	5.0		
	10700	PENN	20	1841.4	1852.9	26.9	12.6	6.3		
	2700	PENN	20	1841.4	1913.9	121	9.7	4.8		
	2695	SGMR	23	1841.6	1938.2	91.6	5.7	2.0		
	2695	CANR	8	1844.5	1846	1.5	8.0	3.0		
	1415	SGMR	20	1844.6	1853.5	63.6	1.4	.5		
	4995	CANR	8	1846	1845.5	1.5	12.0	4.0		
	1420	CANR	45	1846	1847	2.5	6.0	2.0		
	4995	BOUL	8	1851.5	1852.5	2	28.0	1.0		
	9400	HUAN	2	1852.4	1852.7	4	14.2	4.5		
	8800	SGMR	3	1852.6	1853	1.9	11.0	2.5		
	4995	SGMR	3	1852.6	1852.8	2.6	18.1	4.0		
	2800	OTTA	1	1852.3	1852.8	2.5	7.6	2.6		
	2700	PENN	4	1852.4	1852.8	2	13.1	3.9		
	2695	BOUL	8	1852.5	1853	4	9.0	3.0		
	2695	SGMR	1	1852.6	1852.8	2.3	4.6	1.5		
	960	PENN	1	1856	1856.2	.5	1.7	0.7		
	18	MCMA	6	1857	1859	4			2	
	18	MCMA	41	2054	2058	10			1	
	100	HIRA	45	2056.2	2056.5	1	70.0	30.0		
	245	SGMR	7	2058.3	2058.6	.7	290.0	50.0		
	100	HIRA	45	2058.2	2058.5	1	150.0	60.0		
	2800	OTTA	20	2103	2105.5	12	2.0	1.0		
	18	MCMA	6	2122	2123	2			1	
	100	HIRA	5	2347	2347	.5	55.0	20.0		
4	3750	TYKW	1	0225	0227	5	2.0	1.0		
	3750	TYKW	1	0336	0336.6	2	2.0	1.0		
	1000	TYKW	45	0336.7	0336.9	.6	24.0	8.0		
	9400	TYKW	45	0450	0450.2	2	14.0	3.0		
	3750	TYKW	45	0450	0450.2	1.5	3.0	1.0		
	2000	TYKW	1	0450	0450.2	.6	13.0	4.0		
	225	HARS	45	0558.5	0600	3.5	170.0	50.0		
	234	POTS	45	0620.1	0620.2	.1	150.0	30.0		
	234	POTS	45	0628.3	0628.4	.2	350.0	60.0		
	260	ONDR	44	0640	0916	510	105.0			
	221	ABST	41	0700	0817.5	240	15.0			
	204	KIEV	44	0700 E		480 D	60.0	9.0		
	245	SGMR	44	1025 E	1541.1	764 D	495.0			
	245	BOUL	44	1245 E	2203	733 D			2	
	208	VORO	44	2246	0036	134	18.0	14.0		
	113	POTS	45	0721.3	0721.3	.3	200.0	20.0		
	221	ABST	3	0729.5	0730.5	1.5	36.0	12.0		
	550	KIEV	3	0746.7	0751	15.7	53.0			
	210	IZMI	41	0804	0805.2	3	200.0			
	221	ABST	3	0831.8	0833.8	6.5	43.0	9.0		
	29	UPIC	45	0901.5	0902	2.5				
	550	KIEV	3	1022.7	1024.2	1.7	52.0			
	550	KIEV	3	1049.5	1054.5	5.2	50.0			
	3000	BERL	20	1112.5	1150	143	15.0			

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4	1415 ATHN	20	1115	1150.2	66	7.8	1.1		
	2695 ATHN	20	1123.1	1150.6	74.9	32.8	7.0		
	1500 BERL	21	1127.5	1213.4	115	3.2			
	2800 OTTA	21	1130	1215	290	14.4	7.2		
	9500 BERL	20	1133	1155	110	18.0			
	225 HARS	45	1136	1136.2	1.5	100.0	30.0		
	2695 SGMR	20	1139.4	1150.7	16.6U	11.8	4.0U		
	2695 CANR	3	1143.5	1149.5	11	10.0	4.0		
	18 MCMA	6	1143	1145	3			2	
	2800 OTTA	20	1144	1150	13	7.0	3.4		
	1500 BERL	4	1144	1150.7	15	6.0			
	1415 SGMR	20	1145.7	1152	14.3U	6.1	2.0U		
	210 IZMI	6	1145	1145.2	.5	210.0	170.0		
	4995 SGMR	20	1146.8	1154.5	13.2U	12.5	4.2U		
	4995 ATHN	20	1146.6	1218.7	96.7	15.8	3.7		
	1420 CANR	3	1146.5	1150.5	12	5.0	2.0		
	606 SGMR	20	1146.4	1153	11.9	4.0	1.0		
	8800 ATHN	20	1147.6	1157.3	105.8	12.5	3.6		
	7000 SAOP	22	1147		113 U	16.3			
	18 MCMA	41	1203	1207	8			1	
	4995 CANR	3	1246.5	1247.5	1.5	5.0	2.0		
	18 MCMA	6	1307	1310	5			1	
	18 MCMA	6	1424	1425	2			1	
	7000 SAOP	32	1431.4		31.5	-9.0			
	18 MCMA	41	1522	1524	3			1	
	237 TRST	5	1541	1541.1	.1	1100.0			
	4995 CANR	3	1621.5	1622.5	1.5	7.0	3.0		
	2800 OTTA	24	1640		30	2.5			
	2700 PENN	24	1704.8	2118		17.2			
	7000 SAOP	22	1715.3		55.5	11.8			
	9400 HUAN	1	1837.6	1838.3	2.7	19.8	7.0		
	2700 PENN	45	1837.9	1838.8	1.2	23.6	2.5		
	960 PENN	45	1837.9	1838.4	1.2	23.0	0.7		
	15400 SGMR	1	1838.1	1838.4	1.4	4.4	2.2		
	10700 PENN	1	1838.1	1838.5	2.6	9.4	3.6		
	8800 SGMR	4	1838.2	1838.5	2.8	13.4	4.1		
	4995 SGMR	2	1838.1	1838.5	2.2	5.4	1.8		
	2800 OTTA	8	1838	1838.9	1	16.8			
	2695 BOUL	8	1838.5	1839	1	14.0	6.0		
	2695 SGMR	45	1838.2	1838.5	2	4.0	6.5		
	2695 SGMR	45		1839.9		13.6			
	1415 SGMR	1	1838.3	1839.4	1.2	1.8	.6		
	606 SGMR	41	1838.4	1838.5	4.6	8.7	1.0		
	245 SGMR	6	1838.3	1842.3	4.2	34.5	8.5		
	9400 HUAN	20	1900.3	2001.2	66.9	12.6	5.5		
	8800 SGMR	1	2020.8	2021.1	.8	4.8	2.4		
	2800 OTTA	8	2020.9	2021	.5	4.4	2.2		
	2695 SGMR	1	2020.9	2021.1	.5	2.6	1.6		
	606 SGMR	1	2020.9	2021	.3	4.7	2.3		
	4995 SGMR	1	2021	2021.1	.5	2.3	1.1		
	1420 BOUL	8	2021	2021.5	1	9.0	3.0		
	1415 SGMR	1	2021.1	2021.4	.8	8.2	3.3		
	100 HIRA	45	2101 E	2101	1 D	100.0	40.0		
	9400 HUAN	21	2130	2130.8	15.4	12.6	5.4		
	2800 OTTA	1	2130.5	2131.3	1	2.2	1.1		
	1420 BOUL	8	2130.5	2131.5	1.5	4.0	1.0		
	2695 BOUL	3	2131	2132	1.5	3.0	1.0		
	8800 MANI	3	2157.8U	2158.3	1 U	61.0U	21.0U		SUNRISE
	4995 MANI	3	2157.8U	2158.3	1.1U	137.0U	63.0U		SUNRISE
	2695 MANI	3	2157.8U	2158.3	1.1U	82.0U	34.2U		SUNRISE
	245 SGMR	7	2201.5	2202.5	6	375.0	75.0		
	1420 BOUL	8	2202.5	2203	1.5	3.0	1.0		
	1415 SGMR	1	2202.5	2202.6	4.3	1.9	.8		
	606 SGMR	41	2202.2	2206.1	4	14.7	2.7		
	410 SGMR	7	2202	2202.4	5.2	455.0	89.0		
	8800 MANI	3	2204.8U	2205.1	.6U	77.0U	35.0U		SUNRISE
	4995 MANI	3	2204.8U	2205.1	.7U	104.0U	47.1U		SUNRISE
	2695 MANI	3	2204.6U	2205	1.1U	52.0U	22.8U		SUNRISE
	1415 MANI	3	2204.7U	2205	1 U	11.2U	4.6U		SUNRISE
	2695 BOUL	8	2221	2221.5	2	5.0	2.0		
	2695 PENT	20	2315	2317	60	1.6	0.8		
	100 HIRA	45	2315.7	2316.5	3.5	60.0	25.0		
5	100 HIRA	45	0033.5	0034	1.5	110.0	30.0		
	2000 TYKW	1	0238	0238.4	1	3.0	1.0		
	100 HIRA	45	0238	0238.8	1.5	200.0	110.0		
	3750 TYKW	1	0241	0241.9	2	4.0	1.0		
	2695 MANI	1	0241.3	0241.9	1.3	3.5	1.2		
	2000 TYKW	1	0241.7	0241.9	.4	9.0	3.0		
	1415 MANI	1	0241.7	0241.9	1.1	7.4	2.8		
	100 HIRA	45	0241.5	0242	1.5	210.0	120.0		
	606 MANI	41	0635.3	0640.2	5.7	17.4	1.7		
	260 ONDR	44	0640	1337	510	55.0			
	221 ABST	41	0700	0839.2	240	12.0			
	210 IZMI	44	0700		300	50.0			
	204 KIEV	44	0700 E		540 D	63.0	19.0		
	245 SGMR	44	1023 E	1609.4	767 D	49.8			
	245 BOUL	44	1248 E	2042	731 D			1	
	208 VORO	44	2110	2320	170	20.0	8.0		
	606 MANI	4	0813.7	0814.1	2	26.3	5.6		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	29	UPIC	5	1040.5	1040.5	.5				
	23	POTS	5	1040.4	1040.6	1	8000.0	2500.0		
	113	POTS	45	1331.6	1331.8	.6	700.0	150.0		
	29	UPIC	45	1331	1331.5	1				
	23	POTS	45	1331.6	1331.9	1.1	10000.0	2500.0		
	18	MCMA	6	1359	1401	4			1	
	18	MCMA	42	1618	1630	13			1	
	930	BORD	45	1643	1644.5	3	19.0	2.0		
	18	MCMA	6	1705	1706	2			1	
	18	MCMA	6	1900	1901	2			1	
	606	SGMR	40	1910.1	1915.5	6	6.7	1.0		
	410	SGMR	6	1910.4	1912.5	2.7	2.3	.2		
	2800	OTTA	20	1914	1917	10	1.8	0.9		
	18	MCMA	41	1930	1932	3			1	
	2800	OTTA	20	1940	2035	195	3.6	1.8		
	18	MCMA	42	2026	2044	11			1	
	18	MCMA	41	2141	2148	7			1	
	606	MANI	2	2340.8	2342.4	2.4	7.2	1.2		
	2000	TYKW	1	2341.8	2342.1	1	2.0	1.0		
	1000	TYKW	1	2341.8	2342.1	1	2.0	1.0		
	3750	TYKW	1	2342	2342.2	1	2.0	1.0		
	1420	BOUL	3	2342	2342.5	1	2.0	1.0		
	100	HIRA	45	2342	2342.3	1	100.0	35.0		
6	1420	CRON	8	0543.5	0544	1	9.0	4.0		
	1415	MANI	2	0543.8	0544.1	6.8	7.3	1.8		
	606	MANI	2	0543.8	0544	6.8	2.3	.6		
	1420	CRON	45	0546.5	0548	2	4.0	1.0		
	100	HIRA	45	0546.7	0547.6	2	110.0	40.0		
	260	ONDR	44	0650	0806	90	50.0			
	29	UPIC	45	0658.5	0658.5	3.5				
	204	KIEV	42	0700 E		480 D	30.0	6.0		
	260	ONDR	41	0820	1025	410	25.0			
	210	IZMI	41	0707.3	0716	11.7	100.0			
	234	POTS	45	0716.5	0716.9	.5	150.0	6.0		
	221	ABST	1	0717	0717.8	1	52.0			
	1420	ARCE	21	0755 E	0800.6	20 U				
	9285	ARCE	22	0757	0805.4	38.5				
	4995	CRON	8	0805.5	0806	2	10.0	3.0		
	808	ONDR	45	0805	0805.5	2.5	80.0			
	536	ONDR	5	0805.5	0805.5	1.5	80.0			
	9500	BERL	2	0806	0806.3	1	5.4	3.5		
	4995	MANI	1	0806.1	0806.4	1.2	8.6	2.9		
	3000	BERL	4	0806	0806.3	2	7.4	1.6		
	2695	MANI	1	0806.2	0806.4	1	4.8	2.4		
	1500	BERL	2	0806	0806.3	2	3.9	1.3		
	1420	CRON	8	0806	0806.5	2	5.0	2.0		
	1420	ARCE	1	0806.2	0806.4	1				
	1415	MANI	1	0806.2	0806.4	1	1.8	.9		
	930	BORD	45	0806	0806.3	1	10.0	2.0		
	606	MANI	8	0806.1	0806.3	.9	32.5	1.7		
	237	TRST	41	0806.2	0806.3	.8	650.0			
	234	POTS	45	0806.2	0806.2	.3	250.0	15.0		
	221	ABST	1	0806	0806.2	1	52.0			
	210	IZMI	6	0806	0806.1	1	200.0	170.0		
	204	KIEV	6	0806	0806.2	1.2	65.0			
	29	UPIC	5	0851	0851.5	1				
	23	POTS	5	0851.8	0851.9	.8	10000.0	3000.0		
	29	UPIC	45	0900	0901	2				
	29	UPIC	45	0916	0919	4.5				
	23	POTS	45	0918.7	0919.2	1	7000.0	1500.0		
	237	TRST	45	1134.8	1134.9	.2	38.0D			
	210	IZMI	6	1134.8	1134.9	.2	160.0	100.0		
	113	POTS	45	1134.7	1134.8	.3	700.0	250.0		
	29	UPIC	5	1134.5	1135	1.5				
	23	POTS	5	1134.6	1135	.9	12000.0	4000.0		
	18	MCMA	6	1243	1245	2			1	
	9400	HUAN	20	1250.6	1311.4	28	10.3	5.0		
	18	MCMA	6	1511	1513	2			1	
	7000	SAOP	22	1543.4		24	7.0			
	4995	CANR	3	1545.5	1546	1	7.0	2.0		
	2695	CANR	8	1545	1545.5	1.5	6.0	2.0		
	4995	BOUL	3	1546.5	1547	1.5	9.0	3.0		
	2700	PENN	1	1546.7	1547.3	1.5	7.7	2.4		
	4995	SGMR	2	1547.1	1547.2	1.1	4.5	2.0		
	2800	OTTA	2	1547	1547.3	1.2	4.2	2.1		
	2695	BOUL	3	1547	1548	1.5	5.0	2.0		
	2695	SGMR	1	1547	1547.7	1.3	3.2	1.5		
	1420	BOUL	3	1547	1547.5	1.5	2.0	1.0		
	960	PENN	1	1547.3	1547.8	.9	.6	0.4		
	606	SGMR	4	1547	1547.6	1	30.6	6.0		
	18	MCMA	6	1613	1616	3			1	
	245	SGMR	6	1615.2	1615.5	2.1	18.8	4.0		
	2800	OTTA	21	1620	1800	200	6.2	3.1		
	18	MCMA	41	1620	1623	4			1	
	2700	PENN	20	1624.6	1628.8	25.6	7.8	3.0		
	2695	CANR	3	1625	1626.5	2.5	5.0	2.0		
	2800	OTTA	1	1627.5	1628.7	5	3.2	1.6		
	2695	SGMR	20	1627	1629	10 U	4.4	2.5U		
	4995	SGMR	20	1629	1631 U	10 U	2.9U	1.5U		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2700	PENN	20	1717	1758.3	126	8.9	4.5		
	8800	SGMR	22	1734.1	1759.4	45.5	7.7	1.6		
	2695	SGMR	22	1737	1759.3	70.8	6.4	1.1		
	1415	SGMR	22	1737.3	1759.4	67.7U	3.4	.6U		
	4995	SGMR	22	1739 U	1759.3	62.3U	8.8	1.9U		
	2695	CANR	3	1756	1757	1.5	7.0	2.0		
	2800	OTTA	1	1758	1759.1	2	4.2	1.4		
	2700	PENN	1	1758.3	1759.2	1.3	8.9	2.0		
	2695	BOUL	3	1758.5	1759.5	1.5	5.0	2.0		
	1420	BOUL	8	1759	1759.5	1	3.0	1.0		
	18	MCMA	6	1812	1815	3			2	
	18	MCMA	6	1822	1824	3			1	
	9400	HUAN	20	1912.1	2027.6	113.6	13.7	6.3		
	2695	SGMR	46	1923.3	1923.5	1	25.2	11.0		
	2695	SGMR	46		1923.8		42.0			
	1420	BOUL	8	2018.5	2019.5	1.5	7.0	3.0		
	1415	SGMR	2	2018.6	2019.4	3.2	8.5	2.1		
	606	SGMR	4	2018.4	2019.1	1.4	16.0	4.0		
	410	SGMR	6	2018.5	2018.8	1.4	13.0	3.2		
	245	SGMR	6	2018.4	2019	1.6	56.0	11.0		
	18	MCMA	6	2019	2020	2			1	
7	100	HIRA	45	0026	0026.6	1.3	80.0	15.0		
	100	HIRA	45	0526.7	0527.1	2.3	80.0	20.0		
	1000	TYKW	1	0527	0528.1	2	4.0	1.0		
	260	ONDR	41	0630	0826	510	25.0			
	204	KIEV	42	0700 E		480 D	10.0	5.0		
	23	POTS	45	1054.7	1056	4.5	30000.0	7500.0		
	510	POTS	45	1134 E	1134.2	2 D	25.0	6.0		
	29	UPIC	45	1135.5	1139	6.5				
	23	POTS	40	1138.6	1138.6	3.7	7000.0	700.0		
	18	MCMA	41	1158	1201	4			1	
	23	POTS	40	1244.3	1245	2.8	20000.0	2000.0		
	18	MCMA	6	1247	1249	3			1	
	536	ONDR	45	1301	1302	2.5	50.0			
	18	MCMA	6	1301	1303	2			1	
	18	MCMA	6	1320	1322	3			1	
	18	MCMA	6	1422	1424	4			2	
	18	MCMA	6	1438	1442	4			2	
	18	MCMA	41	1502	1512	11			1	
	245	SGMR	6	1504.2	1504.4	.8	35.5	5.0		
	237	TRST	41	1504.3	1504.5	.4	130.0			
	18	MCMA	6	1526	1528	4			1	
	18	MCMA	6	1533	1534	2			1	
	18	MCMA	6	1544	1547	4			2	
	2695	PENT	1	1653.9	1654	2	2.8	1.4		
	2800	OTTA	21	1710	1745	90	3.4	1.7		
	18	MCMA	41	1721	1725	6			2	
	606	SGMR	41	1730.8	1730.9	4.3	33.0	5.0		
	410	SGMR	6	1730.2	1730.9	5.6	4.6	1.2		
	2800	OTTA	8	1743.8	1743.8		2.8			
	18	MCMA	41	1800	1801	5			2	
	18	MCMA	42	1859	1903	8			2	
	2800	OTTA	20	1904	1908	50	2.4	1.2		
	606	SGMR	1	1920.7	1920.9	.8	3.3	.7		
	410	SGMR	6	1920.9	1921.1	.5	1.8	.4		
	245	SGMR	6	1920.8	1921.1	.7	18.4	3.2		
	18	MCMA	41	2018	2019	4			1	
	100	HIRA	45	2040	2040	1	90.0	20.0		
	2695	BOUL	8	2220.5	2221	1	3.0	1.0		
	2000	TYKW	45	2220	2220.7	1	7.0	4.0		
	1420	BOUL	8	2220	2220.5	1	3.0	1.0		
8	9400	TYKW	20	0005	0010	40	4.0	2.0		
	3750	TYKW	20	0005	0010	40	3.0	1.0		
	3750	TYKW	20	0208	0216.1	25	5.0	2.0		
	9400	TYKW	20	0210	0216	30	4.0	2.0		
	9400	TYKW	20	0309	0320	50	4.0	2.0		
	3750	TYKW	20	0309	0320	50	4.0	2.0		
	3750	TYKW	20	0519	0525	20	2.0	1.0		
	9400	TYKW	20	0520	0530	20	2.0	1.0		
	9400	TYKW	20	0602	0612	50	10.0	3.0		
	3750	TYKW	20	0602	0612	50	7.0	3.0		
	1000	TYKW	1	0635	0636	2	2.0	1.0		
	260	ONDR	44	0640	0728.5	170	30.0			
	204	KIEV	44	0700 E	1125	480 D	105.0	24.0		
	234	POTS	45	0856 E	1039 D	334 D	70.0			
	113	POTS	45	0900 E	1132 D	330 D	200.0			
	221	ABST	41	0902	0913.5	120	9.0			
	260	ONDR	44	0930	1058	340	95.0			
	210	IZMI	24	0947	1113	133	120.0	70.0		
	410	SGMR	44	1019 E	1330.7	774 D	85.8			
	245	SGMR	44	1019 E	1518.3	774 D	23.8			
	536	ONDR	45	0646	0648	3.5	70.0			
	1000	TYKW	1	0648	0648.2	2	12.0	1.0		
	808	ONDR	45	0648	0648	2	75.0			
	4995	CRON	3	0659.5	0702	4	14.0	5.0		
	9500	BERL	2	0700	0701.9	20	9.3	2.8		
	9400	TYKW	45	0700	0701.9	4	15.0	8.0		
	8800	ATHN	3	0700.3	0701.6	4.2	15.2	5.1		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
8	3750	TYKW	45	0700	0701.9	35	9.0	2.0		
	3000	BERL	2	0700	0702 .	3	4.7	1.5		
	1500	BERL	2	0701	0701.3	1.6	1.7	0.7		
	9400	TYKW	29	0704		25	7.0	4.0		
	536	ONDR	5	0754	0754	.5	55.0			
	9500	BERL	20	0810	0818	15	6.9	2.9		
	3000	BERL	20	0813	0819	11	1.5	0.7		
	1500	BERL	20	0813	0819.5		.8			
	221	ABST	1	0837.5	0839.5	1.2	10.0			
	9500	BERL	1		0846.5		4.0			
	3000	BERL	2	0846.2	0846.6	1	5.7	1.5		
	1500	BERL	4	0846	0846.5	1	9.2	3.4		
	1420	CRON	8	0846	0846.5	1	13.0	4.0		
	808	ONDR	45	0846	0846.5	1	110.0			
	9285	ARCE	20	0852.3	0900.3	69				
	3000	BERL	20	0855.5	0859.3	8.5	3.9	2.3		
	9500	BERL	20	0857	0910	33 U	4.0	2.0		
	221	ABST	3	0903	0903.2	1	19.0	5.0		
	550	KIEV	20	1000	1026.5	80	75.0			
	536	ONDR	45	1002	1026.5	82	105.0			
	510	POTS	45	1012 E	1027 D	31	27.0	9.0		
	808	ONDR	45	1015.5	1024	28	80.0			
	930	BORD	40	1018	1023.8	14	20.0	3.0		
	9285	ARCE	21	1029	1120.6	120				
	9500	BERL	4	1101.5	1102.5	2	19.0	5.4		
	4995	CANR	8	1101	1102	2.5	17.0	7.0		
	3000	BERL	4	1101.5E	1102.6	2.2U	9.8	3.6		
	2695	CANR	8	1101	1102	2	12.0	5.0		
	210	IZMI	6	1101.9	1102.2	.6	370.0	200.0		
	10500	BERN	3	1102.4	1102.6	2	20.0			
	9285	ARCE	3	1102	1102.7	2.4				
	8800	SGMR	3	1102.4	1102.6	.6	22.0	11.0		
	8800	ATHN	3	1102	1102.7	3.4	23.5	5.9		
	4995	SGMR	3	1102.5	1102.7	.6	10.6	5.3		
	4995	ATHN	3	1102	1102.7	1.9	14.4	3.8		
	2695	SGMR	3	1102.5	1102.7	.6	12.0	6.0		
	2695	ATHN	1	1102.5	1102.7	1.1	7.1	2.4		
	1500	BERL	4	1102.3	1102.7	1.2	68.0	29.0		
	1420	CANR	8	1102	1102.5	1.5	51.0	19.0		
	1420	ARCE	8	1102.4	1102.7	1				
	1415	SGMR	8	1102.5	1102.6	.6	75.6	10.0		
	1415	ATHN	4	1102.5	1102.6	1.5	83.2	11.4		
	930	BORD	45	1102	1102.5	1	46.0	10.0		
	606	SGMR	47	1102.4	1102.5	.7	1400.0	300.0		
	410	SGMR	48	1102.4	1102.5	.7	880.0	200.0		
	408	TRST	41	1102	1102.6	1	67.0D			
	245	SGMR	48	1102.4	1102.5	.9	660.0	150.0		
	237	TRST	45	1102.5	1102.6	.2	2600.0	870.0		
	18	MCMA	41	1115	1119	5			2	
	4995	CANR	3	1118.5	1120	3	8.0	2.0		
	9500	BERL	1	1120	1120.4	1	5.4			
	3000	BERL	1	1120	1120.5	1	3.6			
	2800	OTTA	22	1120	1143	70	4.2	2.4		
	808	ONDR	45	1122.5	1123.5	3.5	75.0			
	408	TRST	42	1122.8	1123	1.2	45.0			
	930	BORD	41	1123	1123.5	3	13.0	2.0		
	18	MCMA	42	1140	1152	17			2	
	410	SGMR	6	1222.8	1223	.5	53.0	11.0		
	606	SGMR	1	1223	1223.1	.3	2.7	1.3		
	536	ONDR	5	1223	1223	.5	75.0			
	8800	SGMR	2	1249.2	1249.6	1	4.4	1.5		
	4995	SGMR	1	1249.3	1249.6	.9	2.6	.9		
	18	MCMA	6	1259	1300	2			1	
	2800	OTTA	8	1314.3	1314.4	.2	2.4	1.2		
	2800	OTTA	24	1320		20	2.2			
	536	ONDR	45	1346	1346	11.5	65.0			
	18	MCMA	42	1354	1404	15			1	
	606	SGMR	40	1358.3	1358.8	2.4	2.7	.8		
	410	SGMR	6	1358.3	1358.5	2.5	5.0	1.3		
	245	SGMR	6	1358.4	1358.5	3	67.0	6.0		
	9400	HUAN	21	1413.8	1443.6	79.5	18.2	2.1		
	8800	SGMR	23	1413	1444	47.7	13.2	3.5		
	4995	SGMR	23	1413.5	1452.4	45.9	7.9	2.0		
	2695	SGMR	23	1414.2	1417.6	45	4.8	1.2		
	2800	OTTA	21	1415	1417	65	3.4	1.7		
	536	ONDR	45	1426	1443	21	145.0			
	4995	BOUL	8	1432.5	1432.5	1	15.0	5.0		
	7000	SAOP	23	1434.1	1443.5	16.5	13.3			
	7000	SAOP	22	1434.1		16.5	6.6			
	606	SGMR	40	1435.2	1435.9	1.1	2.7	.5		
	410	SGMR	6	1435.3	1435.5	2.2	10.8	3.5		
	245	SGMR	6	1435.1	1435.5	1.2	110.0	20.0		
	4995	CANR	8	1442.5	1443	1.5	13.0	5.0		
	2695	CANR	8	1442.5	1443.5	1.5	44.0	15.0		
	1420	CANR	8	1442.5	1443.5	1.5	27.0	11.0		
	808	ONDR	45	1442.5	1443	2.5	105.0			
	18	MCMA	6	1442	1443	2			2	
	9285	ARCE	2	1443.2	1443.6	1 U				
	8800	SGMR	3	1443.1	1443.4	.5	12.3	3.1		
	8800	ATHN	3	1443.1	1443.4	.7	11.8	3.9		

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8	7000	SAOP	1	1443.2	1443.5	.5	13.3	6.8		
	4995	SGMR	3	1443.1	1443.4	.5	11.9	3.0		
	2800	OTTA	3	1443	1443.3	1.5	30.0	10.0		
	2700	PENN	3	1443	1443.4	.9	25.0	12.3		
	2695	BOUL	8	1443.5	1444	2	40.0	15.0		
	2695	SGMR	3	1443	1443.4	1	36.0	9.0		
	2695	ATHN	3	1443.1	1443.4	1	23.5	9.4		
	1420	ARCE	3	1443.2	1443.5	1.4				
	1420	BOUL	8	1443	1443.5	1.5	28.0	11.0		
	1415	SGMR	3	1443.1	1443.4	1.1	32.4	8.0		
	1415	ATHN	3	1443.1	1443.4	1.4	34.2	8.6		
	960	PENN	45	1443.1	1443.4	1.4	35.9	9.3		
	930	BORD	45	1443	1443.3	1	78.0	17.0		
	606	SGMR	4	1443.1	1443.3	2.2	79.0	16.0		
	410	SGMR	7	1443	1443.3	3.3	290.0	50.0		
	245	SGMR	6	1443.1	1443.3	1.7	66.5	16.5		
	29	UPIC	45	1443.5	1443.5	1				
	18	MCMA	42	1511	1514	10			1	
	18	MCMA	6	1535	1537	2			1	
	18	MCMA	6	1544	1546	3			1	
	18	MCMA	6	1553	1554	2			1	
	18	MCMA	6	1557	1559	3			1	
	2800	OTTA	21	1700	1735	60	2.0	1.0		
	9400	HUAN	20	1702.6	1747.8	83.1	10.9	4.4		
	2695	CANR	3	1736.5	1737	2.5	5.0	2.0		
	2695	SGMR	1	1736.6	1738.3	7.1	3.8	1.6		
	18	MCMA	48	1736	1739	6			3	
	4995	CANR	3	1737.5	1738.5	2.5	5.0	2.0		
	4995	SGMR	1	1737.7	1738	7.7	5.3	2.1		
	2800	OTTA	1	1737	1738.3	2	2.6	1.3		
	2695	BOUL	3	1737.5	1739	2	3.0	1.0		
	1420	CANR	45	1737.5	1738.5	2	7.0	3.0		
	1420	BOUL	45	1737	1738	3	9.0	3.0		
	1415	SGMR	1	1737.5	1738.5	9.1	7.0	2.4		
	930	BORD	45	1737	1738.5	3	9.0	3.0		
	606	SGMR	4	1737.1	1738.3	2.5	65.0	8.0		
	410	SGMR	6	1737	1737.6	2.8	27.5	4.0		
	245	SGMR	6	1737	1737.4	3	22.2	5.0		
	410	SGMR	6	1744.1	1750.3	17.4	70.2	17.6		
	245	SGMR	6	1745	1749.4	6.6	55.0	13.8		
	2800	OTTA	20	1805	2025	235	5.0	2.5		
	18	MCMA	6	1859	1900	3			2	
	18	MCMA	42	1904	1911	12			1	
	245	BOUL	42	2016	2331	248 D			1	
	2695	BOUL	3	2130	2132	4	3.0	1.0		
	18	MCMA	42	2214	2225	30			1	
	4995	BOUL	45	2241.5	2242.5	1.5	17.0	4.0		
	9400	TYKW	45	2242	2243.2	2	6.0	2.0		
	3750	TYKW	45	2242	2243.2	2	15.0	6.0		
	2800	OTTA	2	2242	2243.1	2	8.0	2.8		
	2695	BOUL	45	2242	2243.5	2.5	9.0	3.0		
	2695	PENT	24	2300		40	4.8			
9	2695	PENT	25	0019		50	11.2			
	2695	PENT	1	0020	0022	5	4.2	2.1		
	606	MANI	4	0033.7	0037.7	15	10.5	3.1		IIIG
	3750	TYKW	1	0034	0034.8	8	4.0	1.0		
	2695	BOUL	8	0034.5	0035	1.5	7.0	2.0		
	2695	PENT	1	0034.5	0034.7	1.2	3.2	1.6		
	1000	TYKW	45	0034	0037.7	5	10.0	2.0		
	2695	PENT	1	0048	0048.2	.5	1.6	0.8		
	9400	TYKW	1	0252.5	0253	1.5	5.0	2.0		
	3750	TYKW	1	0252.5	0253	1.5	3.0	1.0		
	1000	TYKW	45	0252	0252.7	1	27.0	9.0		
	3750	TYKW	20	0320	0350	150	4.0	2.0		
	9400	TYKW	1	0448	0449.3	3	7.0	2.0		
	8800	MANI	1	0448	0449.3	5.2	8.0	2.0		
	8800	ATHN	1	0448.5	0449.6	3.3	5.3	1.8		
	4995	MANI	1	0448	0449.3	5.2	4.8	1.6		
	3750	TYKW	1	0448	0449.3	2	3.0	1.0		
	2695	CRON	45	0448	0448.5	1.5	21.0	8.0		
	2695	MANI	1	0448	0449.3	5.2	2.2	1.1		
	1415	MANI	40	0448.2	0448.3	1.5	24.5	4.0		
	1415	ATHN	4	0448.3	0448.5	1.6	31.9	5.0		
	1000	TYKW	45	0448.3	0449.3	1.5	26.0	6.0		
	3750	TYKW	20	0630	0633	30	3.0	1.0		
	260	ONDR	44	0650		500	230.0D			
	221	ABST	41	0700	0835	240	21.0			
	210	IZMI	44	0700		300	60.0			
	204	KIEV	44	0700 E		480 D	312.0	31.0		
	410	SGNR	44	1017 E	1448.8	777 D	275.0			
	245	SGNR	44	1017 E	1310.8	777 D	1950.0			
	245	BOUL	42	1246 E	1541	362			3	
	536	ONDR	45	0714.5	0714.5	.5	100.0			
	1500	BERL	4	0725	0725.6	2	5.9	1.3		
	221	ABST	3	0727	0728.8	2.5	55.0	9.0		
	210	IZMI	41	0727	0729	3	120.0			
	808	ONDR	45	0736	0736	1.5	90.0			
	1500	BERL	2	0740.7	0741	.8	3.0			
	930	BORD	5	0746	0746.8	1	13.0	1.0		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
9	8800	ATHN	3	0814.3	0814.7	1.8	48.3	10.7		
	221	ABST	3	0833.2	0835.8	.5	47.0	17.0		
	1500	BERL	46	0842	0844.2	6	3.8	1.3		
	930	BORD	41	0842	0842.7	3	64.0	2.0		
	536	ONDR	5	0843.5	0843.5	.5	70.0			
	1500	BERL	4	1001.3	1002	.7	49.0	17.0		
	1500	BERL	4	1031	1031.8	1.7	13.0			
	1420	ARCE	1	1031	1031.9	1.6				
	1415	ATHN	4	1031 U	1031 U	1 U	20.1	7.7U		
	930	BORD	45	1031	1032	2	121.0	22.0		
	808	ONDR	45	1031	1032	2	190.0			
	550	KIEV	3	1031.5	1222.2	270 D	150.0			
	536	ONDR	45	1031	1038	8	90.0			
	237	TRST	41	1031.3	1031.5	.4	210.0			
	1420	ARCE	29	1032.6		14.5				
	9285	ARCE	21	1039	1054.2	120 D				
	536	ONDR	45	1057.5	1058.5	2.5	120.0			
	930	BORD	45	1058	1059.6	3	110.0	10.0		
	808	ONDR	45	1058.5	1059.5	1.5	160.0			
	606	SGMR	4	1058.9	1059.6	1.1	77.8	19.5		
	510	POTS	45	1058.5E	1059.2U	1.5D	175.0U	40.0U		
	410	SGMR	6	1058.5	1059.3	2	200.2	50.0		
	408	TRST	42	1058.5	1059.3	7.7	81.0D			
	113	POTS	40	1058.6	1058.7	1	140.0	10.0		
	3000	BERL	1	1059	1059.8	1.2	4.6	1.7		
	2695	ATHN	3	1059.3	1059.6	1.3	4.8	1.4		
	1500	BERL	4	1059	1059.9	2	33.0	13.0		
	1420	ARCE	3	1059.2	1059.9	2				
	1415	SGMR	3	1059.4	1059.8	1	40.5	10.1		
	1415	ATHN	4	1059.1	1059.6	1.8	43.1	13.0		
	245	SGMR	48	1059.1	1059.5	3.9	685.0	171.0		
	237	TRST	45	1059.1	1059.5	.8	520.0	130.0		
	234	POTS	45	1059.3	1059.5	.5	350.0	35.0		
	930	BORD	41	1104	1105.8	5	298.0	3.0		
	808	ONDR	45	1105.5	1105.5	1	85.0			
	536	ONDR	45	1117.5	1117.5	.5	300.0			
	408	TRST	5	1117.8	1117.8	.1	18.0	5.0		
	536	ONDR	45	1125	1125.5	.5	80.0			
	808	ONDR	5	1127.5	1127.5	.5	85.0			
	1500	BERL	2	1152.5	1153.4	1	4.7			
	1420	ARCE	2	1152.4	1152.9	.9				
	29	UPIC	45	1155	1223.5	29.5				
	2800	OTTA	1	1206.8	1207	1	1.4	0.7		
	2695	SGMR	1	1206.9	1207.1	2.6	2.0	.5		
	1500	BERL	45	1206.7	1208.3	5	17.0	2.2		
	930	BORD	41	1206	1208.7	4	98.0	4.0		
	808	ONDR	45	1206.5	1208.5	3.5	130.0			
	606	SGMR	41	1206.8	1208.7	2.7	40.8	16.0		
	536	ONDR	45	1206	1208	4.5	55.0			
	410	SGMR	6	1206.7	1209.3	2.8	52.0	22.0		
	408	TRST	41	1206.8	1207	.7	75.0			
	245	SGMR	48	1206.7	1207	2.8	690.0	250.0		
	237	TRST	45	1206.8	1207	.5	1600.0	400.0		
	234	POTS	45	1206.8	1207	.4	1000.0	200.0		
	113	POTS	45	1206.9	1207.1	.3	700.0	200.0		
	1420	ARCE	40	1207	1208.8	5				
	1415	SGMR	41	1207.1	1208.8	2.7	17.3	7.0		
	2700	PENN	3	1220.8	1222.4	3.3	161.0	39.3		
	9285	ARCE	3	1221.8	1222.4	2.2				
	8800	ATHN	4	1221.8	1222.4	1.9	49.1	16.4		
	7000	SAOP	3	1221.6	1222.5	1.5	62.0	30.7		
	4995	ATHN	4	1221.8	1222.4	2.4	75.1	19.0		
	3000	BERL	4	1221	1222.5	19	91.0	23.0		
	2800	OTTA	4	1221	1222.5	7	101.0	18.0		
	2695	SGMR	4	1221.5	1222.4	5.5	116.0	20.0		
	2695	ATHN	4	1221.8	1222.5	3.3	108.0	28.6		
	1500	BERL	4	1221	1223.5	19	378.0	120.0		
	1420	ARCE	3	1221.4	1222.6	7.1				
	1415	SGMR	4	1221.7	1222.6	6.3	540.0	90.0		
	1415	ATHN	4	1221	1222.5	5.9	321.0	84.0		
	960	PENN	45	1221.4	1222	8.5	335.0D	41.0D		
	930	BORD	45	1221	1222.4	10	1406.0	280.0		
	808	ONDR	45	1221.5	1222.5	7	600.0			
	606	SGMR	46	1221.9	1222.6	6.1	210.0	40.0		
	606	SGMR	46		1224.8		100.0			
	536	ONDR	45	1221	1222.5	14	400.0			
	410	SGMR	48	1221.9	1222.4	4.3	1660.0	275.0		
	408	TRST	41	1221.1	1222.4	4.3	990.0D			
	245	SGMR	48	1221.9	1222.4	5	13400.0	2230.0		
	10700	PENN	3	1222.2	1222.4	5.5	25.8	2.8		
	10500	BERN	8	1222.2	1222.3	1	45.0			
	9500	BERL	3	1222	1222.3	4	37.0	9.7		
	9400	HUAN	8	1222.3	1222.8	.8	45.9	14.4		
	9400	SLOU	3	1222.2	1223	1.5	50.0			
	9100	GORK	3	1222.3	1222.5	1.9	50.0	25.0		
	8800	SGMR	4	1222.2	1222.3	2.8	59.4	10.0		
	4995	SGMR	4	1222.2	1222.4	1.8	72.7	14.0		
	510	POTS	40	1222 E	1222.2	4.5D	500.0	80.0		
	237	TRST	42	1222.2	1222.3	1.5	27800.0D			
	234	POTS	40	1222.2	1222.3	1.2	100000.0D	1200.0D		

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9	225 HARS	45	1222	1222.5	2	190.0	40.0		
	113 POTS	5	1222.3	1222.3	.7	100000.0D	3000.0D		
	23 POTS	5	1222.4	1223.5	1.3	70000.0	2500.0		
	7000 SAOP	29	1223.1		6.8				
	4995 SGMR	29	1224	1224	13.8	4.3	1.4		
	4995 ATHN	29	1224.2	1224.2	9.6	6.7	1.9		
	2700 PENN	29	1224.1	1224.1	43.1	20.2	10.1		
	2695 ATHN	29	1225.1	1225.1	9.7	9.5	2.4		
	1415 ATHN	29	1226.9	1226.9	9.8	7.7	2.4		
	2695 SGMR	29	1227	1227	11.7	3.8	1.3		
	606 SGMR	29	1227	1227	11.5	6.8	2.3		
	2800 OTTA	29	1228		8	3.2	1.6		
	1420 ARCE	30	1228.5		62				
	1415 SGMR	29	1228	1228	13.1	6.8	2.3		
	536 ONDR	45	1244	1244	.5	90.0			
	15400 SGMR	4	1251.5	1251.7	1	13.9	3.0		
	10700 PENN	1	1251.8	1251.9	3.1	8.6	1.7		
	8800 SGMR	2	1251.7	1251.8	1.1	8.8	1.4		
	8800 ATHN	1	1251.6	1251.9	1.5	5.5	1.8		
	2800 OTTA	1	1251.6	1252	1	1.4	0.7		
	2695 SGMR	2	1251.8	1251.9	.7	2.3	.8		
	1420 ARCE	1	1251.8	1252.1	.9				
	1415 SGMR	4	1251.8	1252	3.1	21.0	4.0		
	1415 ATHN	4	1251.6	1251.9	1.1	23.0	6.5		
	960 PENN	45	1251.6	1251.9	1	17.4	3.3		
	930 BORD	45	1251	1251.9	2	28.0	3.0		
	808 ONDR	45	1251.5	1252	.5	85.0			
	606 SGMR	3	1251.7	1251.8	.5	20.4	3.9		
	536 ONDR	5	1251.5	1251.5	.5	65.0			
	410 SGMR	6	1251.6	1251.7	.7	106.0	15.0		
	245 SGMR	48	1251.5	1251.7	2.6	1100.0	140.0		
	234 POTS	45	1251.7	1251.9	.3	250.0	50.0		
	1500 BERL	3	1252	1252	.5U	15.0U			
	10700 PENN	1	1310.8	1311.2	1.9	4.4	1.8		
	2800 OTTA	20	1310	1345	75	2.4	1.2		
	1500 BERL	4	1310.6	1310.8	.9	15.0	4.2		
	1420 ARCE	1	1310.7	1310.8	.6				
	1415 SGMR	3	1310.7	1310.8	1.1	19.8	3.2		
	1415 ATHN	4	1310.7	1310.8	1	22.4	5.9		
	960 PENN	45	1310.2	1310.9	1.3	33.0	0.7		
	606 SGMR	3	1310.7	1310.8	.3	13.6	2.3		
	536 ONDR	45	1310	1315	8	90.0			
	510 POTS	41	1310.5E	1316	6 D	280.0	20.0		
	410 SGMR	48	1310.7	1310.8	.4	680.0	85.0		
	408 TRST	45	1310.6	1310.8	.1				
	245 SGMR	48	1310.6	1310.7	.6	1450.0	250.0		
	237 TRST	45	1310.7	1310.7	.3	4900.0	1500.0		
	234 POTS	41	1310.7	1310.8	5.4	2000.0	50.0		
	23 POTS	45	1313.7	1314.1	3.4	30000.0	2500.0		
	18 MCMA	6	1313	1315	3			2	
	29 UPIC	45	1314	1314.5	4.5				
	606 SGMR	40	1315.4	1315.8	1	6.8	1.3		
	410 SGMR	48	1315	1315.4	1.5	750.0	94.0		
	408 TRST	42	1315.2	1315.4	.8				
	113 POTS	45	1315.1	1315.2	1.1	700.0	70.0		
	536 ONDR	5	1339	1339	.5	75.0			
	536 ONDR	45	1424.5	1452	36	150.0			
	9500 BERL			1432.5					
	3000 BERL	1	1431.5	1432.5	5.3	4.6	1.7		
	2695 SGMR	2	1431.3	1432.4	2.7	4.2	1.0		
	1500 BERL	4	1431.6	1432.5	4.4	45.0	17.0		
	960 PENN	45	1431.8	1432.3	1.9	139.0	5.6		
	930 BORD	45	1431	1432.1	3	426.0	4.0		
	808 ONDR	45	1431.5	1432.5	2	270.0			
	606 SGMR	46	1431.3	1433.3	2.7	18.4	6.3		
	606 SGMR	46		1433.4		25.8			
	410 SGMR	6	1431.9	1432.3	1.3	41.4	10.4		
	4995 SGMR	1	1432.3	1432.4	1.7	2.6	.6		
	2800 OTTA	1	1432	1432.3	1	3.4	1.5		
	2695 ATHN	1	1432.1	1432.5	.8	2.4	.7		
	1415 SGMR	45	1432.3	1432.4	.5	48.1	13.3		
	1415 SGMR	45		1432.5		53.3			
	1415 ATHN	4	1432.1	1432.5	.7	53.0	13.6		
	245 SGMR	48	1432	1432.3	.6	742.0	186.0		
	237 TRST	45	1432.2	1432.3	.3	4100.0	1400.0		
	234 POTS	45	1432.1	1432.4	.4	1800.0	250.0		
	1420 ARCE	21	1436.6		46				
	9285 ARCE	21	1439.7	1500	100 U				
	9285 ARCE	3	1442.3	1443.4	3				
	1500 BERL	45	1443.5	1443.8	1.5	4.2			
	1420 ARCE	1	1443.6	1443.9	.6				
	960 PENN	41	1443.7	1443.8	1.3	15.4			
	930 BORD	41	1443	1444.5	3	71.0	2.0		
	808 ONDR	45	1443	1443.5	2.5	100.0			
	113 POTS	41	1448.8	1452.3	3.9	850.0	30.0		
	9500 BERL		1449	1500					
	3000 BERL		1449	1500					
	29 UPIC	45	1449	1452.5	4				
	23 POTS	41	1449	1449	3.9	6000.0	200.0		
	606 SGMR	4	1452	1452.2	.5	126.0	35.0		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
9	410	SGMR	48	1452.1	1452.2	.7	6565.0	700.0		
	1420	BOUL	3	1453	1454.5	1.5	1.0			
	1500	BERL	1	1459.5	1500	1.5	4.6	1.7		
	1420	ARCE	1	1459.8	1500.1	.8				
	960	PENN	3	1459.8	1500.1	.7	19.2	2.5		
	930	BORD	5	1459	1500	2	31.0	2.0		
	1420	BOUL	8	1500	1500.5	1	6.0	2.0		
	18	MCMA	42	1510	1511	9			1	
	1420	BOUL	8	1514.5	1515	1	6.0	2.0		
	1420	ARCE	1	1515.1	1515.4	.6				
	9285	ARCE	1	1519.9	1520.9	1.5U				
	7000	SAOP	3	1540.5	1541.6	2	37.5	18.7		
	4995	BOUL	8	1541.5	1542.5	2.5	38.0	12.0		
	10700	PENN	1	1542.4	1543.3	5.5	9.3	1.7		
	9400	HUAN	1	1542.7	1543.2	1.6	25.7	8.5		
	8800	SGMR	4	1542.3	1543.2	4	33.9	8.5		
	8800	ATHN	3	1542.6	1543.3	2.8	25.5	7.3		
	7000	SAOP	29	1542.5		3.8				
	4995	SGMR	4	1542.4	1543.3	3.1	36.6	9.2		
	4995	ATHN	3	1542.6	1543.2	2.8	36.1	11.4		
	2800	OTTA	4	1542.1	1543.2	5	80.0	11.0		
	2700	PENN	3	1542.8	1543.3	11.4	103.0	6.2		
	2695	BOUL	3	1542.5	1544	5.5	72.0	25.0		
	2695	SGMR	4	1542.4	1543.3	4.1	74.3	18.6		
	2695	ATHN	3	1542.6	1543.4	4	64.3	16.7		
	1420	ARCE	4	1542	1543.3	3				
	1420	BOUL	45	1542	1544.5	5	827.0	152.0		
	1415	SGMR	47	1542.4	1543.4	4.6	616.0	154.0		
	1415	ATHN	47	1542.1	1543.3	3.9	512.0	182.0		
	960	PENN	45	1542.4	1543	8.8	335.0D	43.0D		
	930	BORD	45	1542	1543.8	8	1704.0	280.0		
	606	SGMR	4	1542	1543.3	4.6	375.0	94.0		
	410	SGMR	48	1542.4	1543.3	2.2	930.0	233.0		
	245	SGMR	48	1542.4	1543.1	2.2	2362.0	591.0		
	237	TRST	41	1542.4	1543.1	1 D	2100.0			
	225	HARS	45	1542	1543.5	3	250.0	80.0		
	18	MCMA	6	1542	1544	4			2	
	10500	BERN	3	1543	1543.2	1.5	23.0			
	1420	ARCE	29	1545		12				
	1420	BOUL	41	1552.5	1552.5	1.5	9.0	3.0		
	930	BORD	5	1607	1607	1	10.0	1.0		
	1420	BOUL	41	1615	1625.5	13	254.0	87.0		
	8800	SGMR	45	1619.8	1620.6	10.2	13.2	3.0		
	8800	SGMR	45		1623.5		3.5			
	8800	ATHN	3	1619.6	1620.1	1.5	10.9	3.6		
	7000	SAOP	41	1619.7	1619.9	6.5	14.0			
	7000	SAOP	1	1619.7	1619.9	1.1	14.0	7.0		
	4995	BOUL	3	1619	1619.5	1	10.0	4.0		
	4995	SGMR	45	1619.8	1620	6.4	4.3	2.5		
	4995	SGMR	45		1623.6		12.0			
	4995	ATHN	1	1619.7	1620.1	1.4	7.6	1.9		
	2800	OTTA	41	1619.8	1624	8	25.0			
	2800	OTTA	1	1619.8	1620	1.5	5.8	2.0		
	2700	PENN	3	1619.8	1624	10	39.0	4.2		
	2695	SGMR	46	1619.8	1620	7.6	5.5	5.0		
	2695	SGMR	46		1624		26.6			
	2695	ATHN	1	1619.7	1620.1	1.3	4.8	1.4		
	1420	ARCE	2	1619.9	1620.3	2				
	1415	SGMR	4	1619.8	1624	7.7	248.0	15.0		
	1415	ATHN	4	1619.6	1620.1	1.5	13.0	4.1		
	960	PENN	45	1619.8	1624.1	10.2	346.0D	26.3		
	930	BORD	41	1619	1624	24	923.0	10.0		
	606	SGMR	4	1619.6	1623.9	8	555.0	120.0		
	410	SGMR	49	1619.4	1624	7.7	780.0	150.0		
	245	SGMR	49	1619.6	1623.4	8.2	4550.0	900.0		
	237	TRST	41	1619.8	1619.9	.2D	810.0			
	10700	PENN	1	1620	1620.3	11.8	4.8	1.1		
	2695	BOUL	8	1620	1620.5	1	7.0	3.0		
	4995	BOUL	8	1622.5	1623	1.5	14.0	4.0		
	2800	OTTA	4	1622.2	1624	5.5	25.0	5.0		
	1420	ARCE	3	1622.6	1624	5.5				
	1415	ATHN	4	1622.6	1624	2.1	181.0	63.0		
	237	TRST	41	1622.8	1623.5	1.7	8100.0			
	225	HARS	45	1622.5	1624	2.5	220.0	70.0		
	7000	SAOP	1	1623.3	1620.1	1.2	9.0	4.6		
	2695	BOUL	8	1623	1624.5	4.5	28 .0	11.0		
	2695	ATHN	4	1623.5	1624	1.4	19.0	4.8		
	7000	SAOP	2	1624.5	1625.5	1.6	7.0	3.4		
	1420	BOUL	41	1639	1639.5	1.5	4.0	1.0		
	1420	BOUL	41	1644.5	1649	8.5	10.0	2.0		
	10700	PENN	1	1659.8	1700.4	5.8	4.8			
	8800	SGMR	1	1659.8	1700.1	1.3	6.6	2.3		
	2700	PENN	3	1659.8	1703.4	5.6	24.8			
	1420	BOUL	41	1659.5	1704.5	94.5	316.0	10.0		
	1415	SGMR	4	1659.7	1703.5	6.1	275.0	110.0		
	960	PENN	45	1659.4	1703.6	8	247.0			
	930	BORD	45	1659	1703.5	7	525.0	5.0		
	606	SGMR	4	1659.8	1703.5	6.2	215.0	85.0		
	2800	OTTA	21	1700		220	3.0	1.8		
	4995	BOUL	8	1702.5	1703	1	12.0	4.0		

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APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
9	4995 SGMR	1	1703.2	1703.5	4.3	9.5	3.5		
	2800 OTTA	3	1703	1703.5	2	13.2	4.4		
	2695 BOUL	8	1703	1704	1	13.0	5.0		
	2695 SGMR	3	1703.2	1703.5	4.2	12.7	5.0		
	410 SGMR	6	1703.2	1703.5	1.1	172.0	70.0		
	245 SGMR	7	1703	1703.3	1	425.0	170.0		
	2700 PENN	20	1710.7	1748.8	99.8	10.6	5.3		
	1415 SGMR	46	1710.2	1711.8	6.4	73.4	12.0		
	1415 SGMR	46		1714.7		57.6			
	606 SGMR	41	1710.9	1714.6	4.1	26.5	4.5		
	8800 SGMR	4	1711.7	1713.2	2	10.6	2.5		
	4995 SGMR	1	1711.5	1711.7	1	3.9	1.5		
	2800 OTTA	1	1711.2	1711.7	1	2.0	1.0		
	2695 BOUL	3	1711.5	1712	1.5	6.0	2.0		
	2695 SGMR	1	1711.2	1711.7	1.8	2.9	1.0		
	960 PENN	45	1711.2	1711.5	1.2	7.4	1.3		
	930 BORD	41	1711	1711.7	5	28.0	3.0		
	2695 BOUL	3	1714.5	1715.5	1.5	3.0	1.0		
	960 PENN	45	1714.1	1715	1.4	11.4	1.3		
	9400 HUAN	4	1720.4	1722.7	3	16.5	5.8		
	15400 SGMR	4	1721.5	1722.6	2.4	16.4	4.0		
	10700 PENN	3	1721.4	1722.7	7.6	12.6	3.7		
	8800 SGMR	4	1721.6	1722.8	2.2	13.6	3.0		
	1415 SGMR	41	1721.4	1722.8	6.4	63.0	7.0		
	960 PENN	45	1721.3	1722.8	3.7	20.6	1.8		
	930 BORD	41	1721	1726	5	35.0	3.0		
	606 SGMR	41	1721.5	1722.6	6	47.6	5.5		
	410 SGMR	6	1721.2	1722	2.3	215.0	21.0		
	4995 SGMR	1	1722.6	1722.7	1.8	4.7	2.0		
	2800 OTTA	45	1722	1722.6	2	7.8	2.6		
	2700 PENN	3	1722.4	1722.6	.9	10.6	4.7		
	2695 BOUL	45	1722	1723	2	10.0	3.0		
	2695 SGMR	2	1722	1722.7	2.2	7.8	3.0		
	1415 SGMR	41	1730.4	1732.9	11.1	57.6	5.0		
	960 PENN	45	1731.5	1732.9	9.1	37.2	1.8		
	930 BORD	41	1731	1731.7	24	78.0	2.0		
	410 SGMR	7	1731.9	1732.6	6.8	310.0	35.0		
	245 SGMR	49	1731.9	1737.6	6.7	830.0	85.0		
	2800 OTTA	2	1732	1732.6	2	3.8	1.7		
	2700 PENN	1	1732.2	1732.8	1.3	5.3	2.2		
	2695 BOUL	3	1732.5	1733.5	1.5	5.0	2.0		
	2695 SGMR	1	1732.2	1732.9	2.8	4.8	2.0		
	606 SGMR	41	1732.3	1732.4	6.3	85.6	8.5		
	7000 SAOP	32	1739.3		6	-9.1			
	606 SGMR	41	1743	1743.9	11.4	76.0	8.0		
	410 SGMR	49	1743	1748.2	6.5	1760.0	170.0		
	245 SGMR	6	1743	1748.6	11.6	140.0	15.0		
	4995 BOUL	45	1744	1745	5.5	15.0	5.0		
	2695 SGMR	45	1744.6	1745.9	3.9	9.7	2.5		
	2695 SGMR	45		1747.3		13.1			
	1415 SGMR	41	1744.6	1752	22.3	205.0	20.0		
	960 PENN	45	1744.5	1745.7	3.4	24.6	0.9		
	15400 SGMR	4	1745.1	1746.3	5.3	20.2	5.0		
	10700 PENN	3	1745.2	1746.4	2.9	22.7	16.0		
	9400 HUAN	4	1745.4	1745.6	2.5	25.7	14.4		
	8800 SGMR	4	1745.3	1745.9	4.7	27.3	5.5		
	7000 SAOP	45	1745.3	1746.1	3.4	25.2	11.5		
	4995 SGMR	4	1745.4	1745.9	4	15.1	3.0		
	2800 OTTA	45	1745	1747.1	3	12.6	6.3		
	2700 PENN	3	1745.1	1745.8	3.7	21.3	5.0		
	2695 BOUL	45	1745.5	1747.5	4.5	13.0	3.0		
	18 MCMA	41	1745	1747	5			2	
	10700 PENN	29	1748.1	1748.1	43.6	10.1	5.0		
	7000 SAOP	32	1748.7		8.2	-9.1			
	2800 OTTA	30	1748		55	4.2	2.1		
	2695 SGMR	29	1748.5	1754.4	28.5	1.9	1.0		
	4995 SGMR	29	1749.4	1759	27.5	1.7	1.0		
	15400 SGMR	29	1750.4	1750.4	26.1	6.3	3.0		
	8800 SGMR	29	1750	1754.2	22.5	4.4	2.0		
	2800 OTTA	1	1754	1754.1	1	3.4	1.7		
	2695 BOUL	8	1754	1754.5	1	5.0	2.0		
	960 PENN	8	1754.2	1754.3	.8	10.9			
	2800 OTTA	1	1809	1809.1	1	1.4	0.7		
	960 PENN	8	1809	1809.2	.5	25.2			
	8800 SGMR	3	1826.8	1826.9	.4	16.3	5.2		
	1415 SGMR	4	1826.8	1827	.5	21.2	7.0		
	606 SGMR	40	1826.5	1826.9	1.8	6.8	1.7		
	1420 BOUL	41	1846	1846.5	18	15.0	2.0		
	1420 BOUL	41	1904.5	1911	6.5	11.0	2.0		
	7000 SAOP	1	1905.4	1910	1.5	6.9	3.4		
	1420 BOUL	45	1925.5	1927	2	4.0	2.0		
	1420 BOUL	41	1931.5	1944.5	19	9.0	2.0		
	410 SGMR	6	1932.7	1932.8	2.1	45.5	9.0		
	245 SGMR	48	1932.3	1933.6	2.7	645.0	50.0		
	245 BOUL	41	2017	2020	3			1	
	18 MCMA	6	2023	2025	3			3	
	410 SGMR	48	2026.9	2028.7	3.6	960.0	90.0		
	245 SGMR	7	2026.6	2027.9	3	475.0	60.0		
	1415 SGMR	40	2027.9	2029.4	3.5	3.0	1.0		
	606 SGMR	40	2027.2	2029.4	2.3	15.0	4.0		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
9	245	BOUL	41	2027	2028	5			3	
	2695	BOUL	3	2030	2032.5	2.5	3.0	1.0		
	2695	BOUL	8	2036	2036.5	1	7.0	3.0		
	606	SGMR	4	2113.3	2115.1	2.6	171.0	34.0		2
	410	SGMR	48	2113.5	2115.2	3.1	505.0	100.0		2
	245	BOUL	42	2115	2126	19			1	
	245	BOUL	41	2125	2135	13			1	
	245	BOUL	42	2304	2311	21			3	
	208	VORO	41	2306	2311	5	400.0	56.0		
	8800	MANI	3	2310.4	2310.5	1.4	11.1	3.7		
	4995	MANI	1	2310.4	2310.5	1	6.5	1.6		
	3750	TYKW	1	2310.3	2310.7	1.5	4.0	1.0		
	2695	BOUL	8	2310	2311.5	3	6.0	2.0		
	2695	PENT	1	2310.5	2310.8	1	2.8	1.4		
	2695	MANI	1	2310.4	2310.6	2.2	3.6	1.2		
	2000	TYKW	1	2310.3	2310.7	1.5	5.0	2.0		
	1420	BOUL	8	2310	2311	2.5	6.0	2.0		
	1415	MANI	1	2310.4	2310.6	3.9	5.0	1.7		
	1000	TYKW	3	2310	2310.6	2	23.0	4.0		
	606	MANI	3	2310.4	2310.5	2.2	20.2	7.8		
	606	SGMR	8	2310.6	2310.7	.2	15.0	3.0		2
	410	SGMR	6	2310.5	2310.6	3.5D	138.0	15.0		2
	245	SGMR	7	2310.2	2310.6	3.8D	495.0	55.0		2
	4995	MANI	1	2315.7	2316.9	3	3.3	1.6		
	3750	TYKW	1	2315.8	2316	1	1.0	0.5U		
	2695	MANI	1	2315.7	2316.1	2.6	2.4	1.2		
	2000	TYKW	1	2315.8	2317	3	2.0	1.0		
	1420	BOUL	3	2315.5	2316.5	3	3.0	1.0		
	1415	MANI	1	2315.7	2316.7	4.4	5.0	1.7		
	1000	TYKW	1	2315.8	2316.2	4	13.0	3.0		
	606	MANI	1	2315.7	2316.7	4.4	6.5	1.9		
	2695	BOUL	3	2316.5	2317.5	3	4.0	1.0		
	2695	PENT	1	2316	2317	4	2.4	1.4		
10	2695	MANI	1	0018.7	0022.1	13.7	2.4	12.0		
	4995	CRON	3	0019	0022	6.5	8.0	3.0		
	4995	MANI	1	0019.6	0022	12.8	3.3	1.6		
	1420	CRON	3	0019	0022	4	5.0	2.0		
	1415	MANI	1	0019.6	0022.1	15.7	6.6	3.3		
	606	MANI	40	0019.5	0031.5	44.1	460.0	80.0		
	3750	TYKW	1	0020	0022	7	5.0	2.0		
	2695	BOUL	3	0020	0022.5	5	6.0	2.0		
	2000	TYKW	1	0020	0022	6	6.0	2.0		
	1420	BOUL	3	0020	0022	3	4.0	1.0		
	1000	TYKW	45	0020	0022	5	3.0	1.0		
	500	HIRA	45	0025	0026.1	2	440.0	20.0		
	1000	TYKW	45	0028	0031.3	11	73.0	7.0		
	3750	TYKW	45	0030.3	0031.3	3	4.0	1.0		
	3750	TYKW	20	0030	0214	280	17.0	7.0		
	2000	TYKW	45	0030.3	0031.3	3	3.0	1.0		
	2000	TYKW	20	0030	0213	280	13.0	6.0		
	1420	BOUL	8	0030	0031	1.5	6.0	2.0		
	500	HIRA	45	0030	0031	3	220.0	45.0		
	245	BOUL	41	0034	0035	3			1	
	3750	TYKW	1	0040.8	0041.1	1	2.0	1.0		
	2000	TYKW	45	0040	0048	9	4 .0	1.0		
	1000	TYKW	45	0041	0048	9	13.0	2.0		
	3750	TYKW	1	0045	0048	10	3.0	1.0		
	245	BOUL	41	0045	0048	10			3	
	208	VORO	41	0046	0049	4	370.0	50.0		
	2695	MANI	1	0047.4	0048	2.4	2.4	1.2		
	1415	MANI	1	0047.4	0048	2.6	4.2	1.7		
	500	HIRA	45	0048	0053.2	6	85.0	20.0		
	9400	TYKW	20	0050	0216	260	19.0	8.0		
	2000	TYKW	45	0051	0051.7	2	3.0	1.0		
	1000	TYKW	45	0051	0052.1	2	4.0	2.0		
	500	HIRA	45	0147.6	0149.5	5	920.0	250.0		
	500	HIRA	45	0156.5	0157	2	160.0	50.0		
	1000	TYKW	45	0208	0209.8	7	10.0	1.0		
	606	MANI	41	0456.4	0456.7	4.8	7.1	1.2		
	260	ONDR	44	0640		510	230.0D			
	221	ABST	41	0700	0840	240	17.0			
	210	IZMI	44	0700		300	50.0			
	204	KIEV	44	0700 E		480 D	117.0	19.0		
	410	SGMR	44	1015 E	1055.5	780 D	15.6			
	245	SGMR	44	1015 E	1113.3	780 D	265.0			
	29	UPIC	44	1221.5	1224	338				
	4995	MANI	1	0649.3	0652.3	4.6	2.7	1.4		
	2695	MANI	4	0649.3	0649.9	7.4	18.8	2.5		
	2695	MANI	4	0750.5	0754.8	6.8	15.0	3.8		
	1415	MANI	1	0750.5	0752.8	4.9	5.6	.8		
	234	POTS	45	0816.5	0816.7	.2	350.0	15.0		
	210	IZMI	41	0816	0821.2	6	160.0			
	210	IZMI	41	0839	0840	1	360.0			
	221	ABST	3	0848.2	0849	2.2	47.0	10.0		
	221	ABST	3	0852.2	0854	3.2	36.0	9.0		
	210	IZMI	6	0853.7	0854.4	.7	450.0	350.0		
	210	IZMI	6	0930	0930.3	.8	200.0	150.0		
	930	BORD	41	0957	1001	11	47.0	3.0		
	1500	BERL	40	0958.5	1001.3	32	9.8			

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
10	8800	ATHN	3	0959.5	1001.5	4.7	25.8	6.9		
	3000	BERL	40	0959	1001.8	23	31.0			
	2695	ATHN	3	0959.5	1001.4	3.4	49.4	14.1		
	408	TRST	41	0959	1001.1	2.8	260.0D			
	10500	BERN	3	1000.7	1001.5	4	22.0			
	9500	BERL	3	1000	1002	22	23.0			
	9100	GORK	3	1000.6	1001.6	3	21.0	10.5		
	9100	GORK	3	1000.5	1001.6	3	21.0	10.5		
	808	ONDR	45	1000	1001	9	125.0			
	550	KIEV	3	1000	1005.3	16	300.0			
	536	ONDR	45	1000	1005.5	20	270.0			
	510	POTS	41	1000 E	1001	21	350.0	50.0		
	29	UPIC	45	1000	1008	22				
	23	POTS	45	1000 E	1005.5	9 D	15000.0	1000.0		
	408	TRST	41	1003.9	1004.6	6	220.0D			
	113	POTS	45	1004 E	1008	5 D	700.0	20.0		
	234	POTS	41	1005 E	1007	3 D	100.0	10.0		
	408	TRST	42	1013.2	1014.7	7	110.0			
	234	POTS	41	1015.2	1020	17	350.0	1.0E		
	408	TRST	41	1028.9	1029.2	1 D	92.0			
	29	UPIC	45	1046	1051	10				
	113	POTS	41	1049.2	1053.3	4.3	350.0	10.0		
	23	POTS	45	1053	1053.3	.7	4000.0	1000.0		
	408	TRST	41	1054.2	1054.9	1.8	32.0			
	225	HARS	45	1111	1111.5	1	70.0	20.0		
	930	BORD	5	1119	1119.3	1	13.0	1.0		
	1500	BERL	1	1127.6	1127.9	1.9	2.1			
	18	MCMA	6	1127	1129	3			2	
	3000	BERL	22	1142	1146.4	9	2.9			
	1500	BERL	20	1142.5	1143.5	6	1.7			
	536	ONDR	45	1145	1145.5	2.5	55.0			
	2800	OTTA	21	1155	1340	280	19.2	7.1		
	1500	BERL	21	1210	1332.5	170 D	17.0			
	930	BORD	41	1216	1216.1	1	54.0	2.0		
	113	POTS	41	1220 E	1223.5U	53	50000.0	600.0		
	3000	BERL	21	1221	1345.5	159	17.0			
	3000	BERL	46	1221.5	1230.5	25	60.0	17.0		
	2695	ATHN	46	1221.6	1230.6	11.5	49.4	18.8		
	29	UPIC	45	1221.5	1224	29.5				
	9500	BERL	21	1222	1350	158 D	21.0			
	9500	BERL	46	1222.7	1224.7	14	215.0	70.0		
	9100	GORK	46	1222.9	1225.7	21.7	284.0	59.0		
	9100	GORK		1222.9	1230.6		219.0			
	9100	GORK	46	1222.9	1225.7	21.7	284.0	59.0		
	9100	GORK		1222.9	1230.6		219.0			
	2800	OTTA	46	1222.5	1230.5	12.5	53.0	21.0		
	2800	OTTA		1222.5	1224.2	4	46.0			
	2800	OTTA		1226.5	1230.5	8.5	53.0			
	2700	PENN	45	1222.7	1230.6	11.3	98.1	42.0		
	2695	SGMR	46	1222.9	1224.4	12.6	41.0	10.3		
	2695	SGMR	46		1230.5		46.6			
	1500	BERL	46	1222.5	1232.5	22	48.0	9.0		
	1420	ARCE	46	1222.9	1232.4	17				
	1420	ARCE		1222.9	1224.1	4.3				
	1420	ARCE		1227.2	1232.4	12.7				
	1415	SGMR	46	1222.7	1224.1	17.5	34.0	8.5		
	1415	SGMR	46		1232.2		46.2			
	960	PENN	45	1222.3	1224.1	22.8	32.3	5.2		
	930	BORD	41	1222	1224	26	87.0	11.0		
	808	ONDR	45	1222	1238	23	160.0			
	606	SGMR	47	1222.2	1224.4	31.3	710.0	178.0		
	606	SGMR	47		1227.9		653.0			
	550	KIEV	41	1222	1310	50	950.0			
	536	ONDR	45	1222	1227.5	23	570.0			
	510	POTS	41	1222	1310 U	52	600.0	40.0		
	410	SGMR	49	1222.6	1228	22.3	4414.0	1104.0		4.CONT.
	408	TRST	42	1222.7	1228	21.4	1900.0D			
	23	POTS	41	1222 E	1224 U	51	30000.0	1000.0		
	18	MCMA	42	1222	1225	76			3	
	10700	PENN	45	1223.6	1225.5	12.2	229.0	89.1		
	9400	HUAN	46	1223.5	1225.3	14.5	253.8	101.2		
	9400	HUAN			1230.3		180.5			
	9400	SLOU	46	1223.5	1225.4	13	267.0			
	9285	ARCE	46	1223	1225.5	13.3				
	9285	ARCE		1226.8	1230.5	9.5				
	9285	ARCE		1223	1225.5	3.8				
	8800	SGMR	46	1223.7	1225.4	12	276.0	69.0		
	8800	SGMR	46		1230.5		240.0			
	8800	ATHN	46	1223.1	1225.4	10	346.0	76.0		
	4995	SGMR	46	1223.1	1225.5	12.6	149.0	37.3		
	4995	SGMR	46		1230.6		154.0			
	245	SGMR	7	1223.3	1229.4	15.8	460.0	115.0		
	234	POTS	40	1223.1	1229.4	9.1	2200.0	70.0		
	37000	SLOU	46	1224.5	1226	10	260.0			
	19000	SLOU	46	1224.8	1226	9.5	206.0			
	15400	SGMR	46	1224	1225.5	11.3	156.5	39.1		
	15400	SGMR	46		1230.4		128.1			
	7000	SAOP	45	1224.2	1226.4	12.1	189.4	97.6		
	7000	SAOP	3	1224.2	1226.4	3.5	189.4	90.3		
	237	TRST	42	1224	1229.4	9	5000.0			

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
10	225	HARS	45	1224	1228	10	200.0	60.0		
	260	ONDR	45	1225.5		14	230.0D			
	7000	SAOP	4	1227.7	1231.6	8.6	182.1	98.1		
	2700	PENN	29	1234	1234	21.4	9.1	4.5		
	10700	PENN	29	1235.8	1235.8	31.8	8.8	4.4		
	9100	GORK	29	1235.3	1235.5	9.3	13.0	4.0		
	9100	GORK	29	1235.3	1235.5	9.3	13.0	4.0		
	9285	ARCE	29	1236.3		23				
	2695	SGMR	23	1250.6	1340.8	119.8	19.0	4.8		
	2800	OTTA	1	1251	1252.3	3	3.8	1.5		
	606	SGMR	21	1253.3	1333.3	63.4	27.5	7.2		
	8800	ATHN	21	1259.1	1359.6	137.5	19.9	7.2		
	2800	OTTA	1	1259.5	1301	3.5	6.4	3.2		
	2700	PENN	20	1259.7	1340.8	121	27.3	13.6		
	2695	ATHN	21	1259.8	1354	101.1	14.1	4.7		
	1420	ARCE	23	1259	1334.8	105				
	1415	SGMR	21	1259.9	1336.6	116.2	17.4	4.1		
	4995	SGMR	21	1300	1400	88.9	15.2	4.0		
	536	ONDR	45	1304 E	1310	10 D	550.0			
	410	SGMR	48	1304.4	1310.7	8.3	1300.0	210.0		
	606	SGMR	47	1305 U	1311	9.5U	620.0	110.0		
	808	ONDR	45	1307 E	1310.5	46 D	150.0			
	408	TRST	42	1307	1310.7	5.6				
	3000	BERL	4	1308.5	1312.5	6.5	29.0	7.4		
	260	ONDR	45	1308	1311	5.5	190.0			
	9400	HUAN	20	1309.2	1312.1	111.5	16.9	6.6		
	2700	PENN	45	1309.7	1312.3	4.6	34.7	13.8		
	2695	SGMR	4	1309.9	1312.4	4.6	17.3	4.0		
	2695	ATHN	4	1309.8	1312.5	4.1	23.5	7.1		
	9500	BERL	3	1310	1312.3	3.5	15.0			
	9285	ARCE	22	1310.1	1312.7U	58 U				
	8800	ATHN	4	1310.3	1312.5	5.8	14.5	5.4		
	4995	SGMR	45	1310.3	1311.7	4.7	13.3	4.5		
	4995	SGMR	45		1312.5		17.4			
	2800	OTTA	4	1310	1312.5	5	21.0	9.0		
	1415	SGMR	3	1310.7	1312.5	3.3	61.0	12.0		
	29	UPIC	45	1310	1312	2.5				
	9100	GORK	1	1311.6	1312.5	20	7.9	3.9		
	1500	BERL	3	1312	1312.5	1	57.0			
	1420	ARCE	8	1312	1312.6	1				
	960	PENN	3	1312	1312.5	1	49.5	12.7		
	930	BORD	41	1312	1312.2	1	87.0	30.0		
	234	POTS	41	1316.2	1324.6	8.5	150.0	1.0E		
	245	BOUL	42	1320	1311	167			2	
	4995	BOUL	21	1351.5	1356.5	41.5	18.0	6.0		
	1420	BOUL	45	1502.5	1509	10	7.0	2.0		
	4995	BOUL	45	1509.5	1512	4.5	27.0	9.0		
	18	MCMA	42	1510	1512	7			1	
	2695	BOUL	45	1511	1513	2	12.0	3.0		
	1420	BOUL	8	1511.5	1513.5	2.5	67.0	24.0		
	245	BOUL	42	1532	1611	61			1	
	18	MCMA	42	1536	1542	12			1	
	245	BOUL	42	1633	1656	34			2	
	2700	PENN	45	1652.5	1652.9	1	81.5	34.7		
	2700	PENN	45	1654.9	1655.2	.4	121.0	10.4		
	245	BOUL	42	1738	1910	101			3	
	18	MCMA	41	1826	1827	4			1	
	18	MCMA	41	1835	1837	6			1	
	18	MCMA	6	1902	1904	3			1	
	960	PENN	45	1906.1	1910.9	10.8	30.8	5.6		
	245	SGMR	7	1906.2	1908	10.8	405.0	30.0		
	18	MCMA	41	1906	1911	14			3	
	18	MCMA	41	1906	1916	14			3	
	4995	BOUL	45	1907.5	1909	10	101.0	30.0		
	2800	OTTA	46	1907	1909.1	10.5	50.0	14.6		
	2800	OTTA		1907	1909.1	5.5	50.0			
	2800	OTTA		1912.5	1915	5	19.0			
	2700	PENN	45	1907.8	1909	8.7	80.7	25.5		
	2695	BOUL	45	1907	1909.5	12	45.0	12.0		
	2695	SGMR	46	1907.2	1909.1	10.7	47.7	10.0		
	2695	SGMR	46		1915		15.3			
	1420	BOUL	45	1907.5	1911	4.5	17.0	7.0		
	606	SGMR	46	1907.3	1909	10.2	58.9	20.0		
	606	SGMR	46		1910.6		116.5			
	15400	SGMR	3	1908.4	1909.1	9.2	65.4	15.0		
	10700	PENN	45	1908.1	1909.2	5.	74.7	22.2		
	9400	HUAN	45	1908.1	1909	15.4	105.3	30.0		
	8800	SGMR	4	1908.1	1909.2	12.2	113.2	25.0		
	7000	SAOP	3	1908	1909.2	9	173.0	115.4		
	4995	SGMR	46	1908.1	1909.2	12.5	104.1	20.0		
	4995	SGMR	46		1915.1		22.8			
	1415	SGMR	45	1908.2	1909	13.9	15.6	5.0		
	1415	SGMR	45		1910.9		23.4			
	410	SGMR	6	1908.2	1910.5	9.8	183.3	20.0		
	10700	PENN	20	1913.3	1915.7	17.1	11.7	4.3		
	1420	BOUL	3	1913	1915	4	5.0	2.0		
	2700	PENN	29	1916.5	1916.5	14.3	7.0	3.5		
	960	PENN	29	1916.9	1916.9	13.9	.8	0.4		
	10700	PENN	20	1931	1941.5	45.1	4.7	2.3		
	100	HIRA	27	2007 E	2036	259 U	200.0	35.0		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	18	MCMA	6	2040	2041	2			2	
	500	HIRA	45	2043	2050	9	1500.0	500.0		
	245	BOUL	42	2100	2109	38			3	
	2800	OTTA	21	2120	2155	105	4.6	2.3		
	10700	PENN	3	2134.7	2136	17.7	19.2	4.8		
	4995	BOUL	8	2134	2135.5	2.5	39.0	13.0		
	2800	OTTA	45	2134	2136	3.5	30.0	7.5		
	2700	PENN	3	2134	2135.9	9.1	50.3	10.4		
	2695	BOUL	45	2135.5	2136.5	2.5	30.0	8.0		
	1420	BOUL	8	2136	2136.5	1.5	3.0	1.0		
	2800	OTTA	29	2137.5		12	4.6	2.3		
	2695	PENT	1	2234	2234.3	2	3.6	1.7		
	606	MANI	40	2307.3	2310	5.3	31.2	9.4		
11	245	BOUL	41	0026	0041	34			1	
	3750	TYKW	3	0156.8	0157.2	2	11.0	2.0		
	9400	TYKW	1	0157	0157.2	1	3.0	1.0		
	3750	TYKW	1	0227	0229.5	6	2.0	1.0		
	9750	IRKU	3	0329	0330.4	5	7.0	23.0		
	9400	TYKW	3	0330	0330.4	2	13.0	4.0		
	3750	TYKW	1	0330	0330.4	1	1.0	0.5U		
	8800	MANI	1	0340.4	0341.4	1.9	7.2	1.8		
	4995	MANI	1	0340.4	0341	1.9	8.2	1.4		
	3750	TYKW	1	0340	0341.1	3	5.0	2.0		
	2695	MANI	1	0340.4	0341	1.9	2.5	1.2		
	9100	GORK	20	0351.4	0416	33.1	23.0	8.5		
	100	GORK	44	0609 E		411 D		10.0		
	260	ONDR	44	0640	1305	510	55.0			
	221	ABST	41	0700	0750	240	6.0			
	204	KIEV	44	0700 E		480 D	51.0	8.0		
	245	SGMR	44	1013 E	1539.4	783 D	210.0			
	950	GORK	1	0654	0654.2	2	2.0	1.0		
	650	GORK	40	0654	0655.5	3.4	3.8			
	29	UPIC	45	0654	0657	7				
	23	POTS	45	0654.7	0657.1	4.8	40000.0	1500.0		
	113	POTS	45	0655.4	0657	3.8	10000.0	500.0		
	100	GORK	41	0655.8	0656.2	2	1200.0			
	100	GORK		0655.8	0657.1		1200.0			
	3750	TYKW	45	0759	0800.1	3	7.0	2.0		
	3000	BERL	1	0759	0800	2.4	5.8			
	2950	GORK	4	0759.7	0800.2	1.8	8.9	3.2		
	2000	TYKW	1	0759	0800.5	3	2.0	1.0		
	29	UPIC	45	0808	0809	5.5				
	3000	BERL	21	0852	0959	148	7.0			
	9500	BERL	21	0910	1150	275	9.4			
	2950	GORK	23	0919.7	0924.5	13.4	8.8			
	1500	BERL	20	0920	0925	55	1.7			
	9100	GORK	1	0923.6	0925.9	3.8	9.0	4.5		
	9500	BERL	3	0925	0926	1.5	11.0			
	3000	BERL	3	0925	0925.8	2	12.0			
	2950	GORK	1	0925.2	0925.8	1.2	7.8	3.9		
	221	ABST	3	0928.8	0929.2	1	15.0	4.0		
	100	GORK	6	0958.2	0958.9	.9	270.0	135.0		
	29	UPIC	45	0959.5	1001.5	2.5				
	100	GORK	6	1044.5	1045	1.6	230.0	100.0		
	29	UPIC	45	1044.5	1045	1.5				
	23	POTS	45	1045.2	1045.8	1.4	5000.0	1200.0		
	408	TRST	41	1046.8	1046.9	.3	19.0			
	100	GORK	6	1059.7	1100	.6	200.0	100.0		
	18	MCMA	6	1116	1117	2			2	
	100	GORK	6	1131.8	1132.5	.8	300.0	100.0		
	100	GORK	6	1139.3	1140	.7	300.0	100.0		
	2800	OTTA	21	1140	1300	105	2.4	1.6		
	100	GORK	6	1146.7	1147	.9	300.0	100.0		
	23	POTS	45	1146.8	1147	.6	7000.0	2500.0		
	29	UPIC	5	1147	1147.5	1				
	100	GORK	6	1156.4	1157	.9	300.0	150.0		
	100	GORK	48	1203.8	1206.4	4	200.0			
	29	UPIC	40	1204.5	1302.5	63.5				
	1500	BERL	3	1206.6	1207.2	1.5	13.0	4.2		
	100	GORK	41	1223.8	1227.3	8.5	450.0			
	100	GORK		1223.8	1231.4		700.0			
	245	BOUL	41	1250	1303	19			3	
	100	GORK	41	1256.8	1258	4.7	180.0D			
	100	GORK		1256.8	1308 U		180.0D			
	1500	BERL	46	1257	1302.3	7.3	14.0	3.3		
	1420	ARCE	40	1257.1	1302.4	10				
	113	POTS	40	1257.5	1300.6	11	800.0	40.0		
	23	POTS	40	1257.8	1303.7	6.2D	15000.0	1000.0		
	15400	SGMR	1	1258.6	1302.5	5.7	7.4	3.0		
	1415	SGMR	45	1300.2	1300.3	5.3	6.4	3.0		
	1415	SGMR	45		1302.3		16.6			
	606	SGMR	4	1300.6	1302.7	9.1	27.5	5.0		
	410	SGMR	6	1300.7	1303.5	8.5	67.6	10.0		
	245	SGMR	7	1300.2	1302.3	9.8	260.0	40.0		
	3000	BERL	1	1301	1302.5	2.5	4.6			
	2800	OTTA	1	1301.9	1302.5	2.5	3.0	2.0		
	2695	SGMR	1	1301.4	1302.2	3.1	3.0	1.5		
	510	POTS	45	1301 E	1302 D	7 D	70.0	3.0		
	237	TRST	41	1301.9	1302.2	1.5	1800.0			

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APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
11	225 HARS	45	1301	1302.5	3	150.0	40.0		
	204 KIEV	6	1301.5	1302.	2.7	94.0			
	9500 BERL	3	1302	1302.5	2	14.0			
	9285 ARCE	1	1302.3	1303.2	2				
	8800 SGMR	2	1302	1303.1	3.5	8.0	3.0		
	4995 SGMR	1	1302	1302.8	3.4	7.8	3.0		
	1420 BOUL	8	1302	1302.5	1	11.0	4.0		
	550 KIEV	20	1302	1303.2	5.7	79.0			
	536 ONDR	45	1302.5E	1302.5	7	110.0			
	234 POTS	45	1302	1302.2	1.3	450.0	60.0		
	9285 ARCE	24	1327		21.5				
	410 SGMR	6	1340.2	1340.3	3.1	8.4	2.0		
	245 SGMR	6	1340.2	1340.6	1	29.0	5.0		
	7000 SAOP	3	1402.2	1407.3	5.3	91.6	40.8		
	9500 BERL	4	1404.2	1405.2	7.8	47.0	6.7		
	9400 HUAN	4	1404.9	1405.4	3.9	66.9	17.6		
	9285 ARCE	3	1404.6	1405.3	1.8				
	8800 ATHN	4	1404.3	1405.2	7.4	58.6	14.6		
	4995 BOUL	8	1404	1405	3	115.0	39.0		
	4995 ATHN	4	1404.3	1405.2	7.7	77.6	17.5		
	3000 BERL	4	1404.5	1405.4	43	59.0	5.8		
	2800 OTTA	3	1404.2	1405.2	3.8	75.0	12.0		
	2700 PENN	3	1404.1	1405.3	3.2	124.0	34.9		
	2695 ATHN	4	1404.3	1405.2	4.6	48.1	12.5		
	10700 PENN	45	1405.3	1405.5	5.1	44.6	10.4		
	9400 SLOU	4	1405	1405.7	7	68.0			
	2695 BOUL	8	1405	1406.5	8	62.0	23.0		
	1500 BERL	1	1405	1405.5	2	3.3	1.3		
	9285 ARCE	29	1406.4		110 U				
	7000 SAOP	29	1407.5		38.2				
	2700 PENN	29	1407.3	1407.3	16.7	11.4	5.7		
	2800 OTTA	30	1408		70	4.0	2.0		
	18 MCMA	6	1411	1413	3			2	
	245 SGMR	6	U	1416.2	3.3D	113.8			
	245 BOUL	41	1429	1434	7			2	
	2800 OTTA	20	1455	1457	17	1.2	0.6		
	245 BOUL	42	1500	1541	42			3	
	4995 BOUL	3	1527.5	1529	2	6.0	2.0		
	2800 OTTA	1	1528	1529	5	2.2	1.1		
	2695 BOUL	3	1528.5	1529.5	2	3.0	1.0		
	2800 OTTA	21	1555	1655	150	4.0	2.0		
	2695 BOUL	3	1612.5	1614	3.5	3.0	1.0		
	9400 SLOU	4	1616	1625	11	52.0			
	9400 HUAN	21	1620.5	1624.8	10.6	48.3	11.8		
	8800 SGMR	4	1620.7	1624.8	14.1	58.0	15.0		
	7000 SAOP	4	1620.6	1624.7	6.5	75.3	37.6		
	4995 BOUL	45	1620	1624	6	53.0	14.0		
	4995 SGMR	4	1620.7	1624.6	15.6	43.0	11.0		
	4995 ATHN	4	1620.4	1624.2	10 U	35.9	8.7U		
	2800 OTTA	46	1620.5	1625	6	7.8	3.6		
	2700 PENN	45	1620.8	1625.1	10	21.4	7.5		
	2695 SGMR	46	1620.5	1621.1	14.4	8.0	3.0		
	2695 SGMR	46		1625.1		9.0			
	2695 ATHN	2	1620.7	1624.7	8 U	6.3	2.1U		
	15400 SGMR	3	1621.6	1624.6	12.4	30.0	7.2		
	10700 PENN	3	1621	1624.9	11.7	33.9	7.0		
	9285 ARCE	21	1621.4	1623.1	8.3				
	8800 ATHN	4	1621.5	1624.4	8 U	36.6	9.2U		
	2695 BOUL	45	1621	1625.5	7.5	9.0	3.0		
	1420 ARCE	21	1621.2	1625	6.5				
	1420 ARCE	4	1621.2	1621.5	.8				
	1420 BOUL	45	1621	1622.5	6.5	75.0	24.0		
	1415 SGMR	46	1621.1	1621.2	10.9	52.0	7.0		
	1415 SGMR	46		1621.4		69.0			
	960 PENN		1621.4	1625.2	7.6	6.1	0.5		
	9285 ARCE	3	1624.4	1624.8	1.5				
	7000 SAOP	32	1627.1		38.8	-18.8			
	18 MCMA	41	1638	1643	24			1	
	245 BOUL	41	1639	1641	19			3	
	18 MCMA	6	1722	1724	3			1	
	7000 SAOP	28	1831.6		11.3				
	2800 OTTA	21	1834		285	6.0			
	2800 OTTA	1	1834	1836	4	2.2	1.1		
	2695 BOUL	45	1834.5	1836.5	3.5	3.0	1.0		
	1420 BOUL	3	1834	1836.5	3.5	2.0	1.0		
	410 SGMR	6	1834.7	1834.8	1.7	8.8	2.1		
	18 MCMA	6	1834	1837	3			3	
	1415 SGMR	1	1835.9	1836.1	1.5	1.5	.3		
	606 SGMR	1	1835.9	1836.1	.4	2.0	.5		
	245 SGMR	6	1835.7	1836	1.1	27.0	9.0		
	10700 PENN	24	1840	2017.8		21.3			
	2700 PENN	24	1840	1938.1		12.0			
	1420 BOUL	45	1840	1844.5	20.5	454.0	63.0		
	18 MCMA	41	1840	1843	11			3	
	4995 BOUL	45	1841	1843	14.5	140.0	37.0		
	2800 OTTA	45	1841	1843	13	124.0	28.0		
	2800 OTTA		1841	1843	2.2	124.0			
	2800 OTTA		1843.2	1843.7	1.9	12.2			
	2800 OTTA		1845.1	1846	2.9	55.0			
	2800 OTTA		1848	1850	6	46.0			

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APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
11	2695 BOUL	45	1841.5	1843.5	15	105.0	33.0		
	410 SGMR	6	1841.4	1843.4	16.8	90.0	30.0		SCNA
	245 SGMR	7	1841.3	1842.4	11.5	340.0	80.0		3G,SWF
	15400 SGMR	46	1842.1	1844.6	18.4	145.0	50.0		SCNA
	15400 SGMR	46		1847.6		88.4			3G,SWF,
	10700 PENN	45	1842.4	1844.6	18.4	181.0	49.3		
	9400 HUAN	46	1842.3	1844.7	11	200.7	92.0		
	9400 HUAN			1849.8		109.6			
	8800 SGMR	46	1842.4	1844.6	19.1	185.0	50.0		
	8800 SGMR	46		1847		128.9			SCNA
	7000 SAOP	46	1842.9	1844	19.5	232.8	118.4		3G,SWF,
	4995 SGMR	46	1842.4	1843.6	16.6	120.0	40.0		
	4995 SGMR	46		1845.6		115.0			SCNA
	2700 PENN	45	1842.3	1842.6	16.3	192.0	35.1		3G,SWF,
	2695 SGMR	46	1842.3	1842.8	14.7	125.0	40.0		
	2695 SGMR	46		1843.5		120.0			SCNA
	1415 SGMR	47	1842.4	1842.8	18.7	300.0	100.0		3G,SWF,
	1415 SGMR	47		1843.5		540.0			SCNA
	960 PENN	45	1842.5	1843.7	10.9	79.7	13.5		3G,SWF,
	606 SGMR	46	1842.3	1845.6	17.9	74.0	25.0		
	606 SGMR	46		1846.8		66.0			SCNA
	245 BOUL	42	1842	1843	32			3	3G,SWF,
	35000 SGMR	3	1843	1845.2	13	175.0	50.0		
	7000 SAOP	29	1852.4		27.6				3G,SWF,
	9400 HUAN	29	1853.3	1853.3	18	31.6	16.1		
	2800 OTTA	29	1854		15	4.4	2.2		
	2695 SGMR	30	1857	1857	108 U	4.0	2.0		CONT
	4995 SGMR	30	1859	1859	106 U	5.6	2.8		CONT
	15400 SGMR	29	1900.5	1900.5	17.2	12.2	6.1		CONT
	8800 SGMR	29	1901.5	1901.5	15	12.3	6.1		CONT
	606 SGMR	43	1900.2	2019.1	141.2	200.0			CONT,SWF
	960 PENN	45	1913.2	1913.5	.5	9.2	2.0		
	1420 BOUL	45	1915	2026	120.5	163.0	37.0		
	2800 OTTA	40	1918.5	1932.6	15	25.6			
	1415 SGMR	22	1922.5	1926.6	19.1	8.4	4.2		CONT,SWF
	960 PENN	45	1922.4	2045	101	340.0D			
	2695 SGMR	40	1923.2	1932.6	10.7	22.0	11.0		CONT,SWF
	2700 PENN	40	1924.2		6				
	2695 BOUL	40	1924.5	1933	8.5	26.0	4.0		
	2700 PENN	8	1932.6	1932.6	.2	25.4			
	8800 SGMR	23	1935.1	2003.4	69.9U	15.5	8.0		CONT,SWF
	245 BOUL	48	1938	2006	31			3	
	4995 SGMR	23	1944.7	2001.5	60.3U	17.6	9.0		CONT,SWF
	2700 PENN	28	1944.5	2016.6	36.9	29.9	18.4		
	2695 SGMR	23	1944.7	2001.8	60.3U	21.4	10.0		CONT,SWF
	1415 SGMR	23	1944.8	2001.9	122.5	20.7	8.0		CONT,SWF
	2800 OTTA	28	1945		37	16.2			
	2695 BOUL	45	1945	2034.5	132	103.0	42.0		
	18 MCMA	41	1949	2006	19			1	
	4995 BOUL	3	1958	2001.5	6	9.0	4.0		
	606 SGMR	47	1958.5	2046	65.6	2000.0	700.0		CONT
	410 SGMR	43	1958.2	2000.9	82.8	92.0			CONT
	410 SGMR	49	2004.1	2045.6	62.1	1600.0	590.0		CONT
	245 SGMR	49	2004.2	2007.5	7.7	850.0	340.0		CONT
	1415 SGMR	46	2009.1	2024.8	59.2	205.0	50.0		CONT
	1415 SGMR	46		2027		163.0			CONT
	4995 BOUL	45	2020	2033	60.5	64.0	19.0		
	245 BOUL	7	2020	2023	63			3	
	9400 HUAN	22	2021.3	2036.2	75.8	39.0	14.3		
	2700 PENN	45	2021.4	2033.6	42	156.0	83.9		
	2695 SGMR	46	2021.9	2027.2	23.1U	84.6	25.0U		CONT
	2695 SGMR	46		2033.6		105.0			CONT
	4995 SGMR	22	2022.2	2033.7	22.8U	44.0	19.0U		CONT
	2800 OTTA	46	2022	2033.8	50	110.0	40.0		
	18 MCMA	41	2022	2023	12			1	
	15400 SGMR	20	2023.3	2045.1	46	30.0	15.0		CONT
	10700 PENN	20	2023.9	2035.1	54.4	21.3	12.6		
	8800 SGMR	22	2023.2	2041	21.8U	32.8	16.5U		CONT
	2700 PENN	29	2103.4	2103.4	55.9	29.9	15.0		
	960 PENN	29	2103.4	2103.4	69.6	4.5	2.3		
	2800 OTTA	29	2112		75	15.6	5.2		
	2695 PENT	1	2404	2404.2	6	5.0	2.5		
12	2695 BOUL	45	0002.5	0004	6.5	76.0	31.0		
	4995 CRON	3	0003.5	0004.5	3.5	14.0	4.0		
	4995 BOUL	8	0003	0004	3	18.0	6.0		
	4995 MANI	3	0003.9	0004.3	4.9	12.2	2.7		3 SPA
	2695 CRON	3	0003	0004	3	5.0	2.0		
	2695 MANI	1	0003.9	0004.3	4.9	7.3	1.2		
	1420 CRON	8	0004	0004.5	1.5	12.0	4.0		
	1420 BOUL	8	0004	0005	1.5	7.0	2.0		
	1415 MANI	3	0004	0004.6	2.2	10.0	2.3		
	3750 TYKW	20	0214	0218	12	3.0	1.0		
	3750 TYKW	20	0305	0306.9	20	5.0	2.0		
	100 GORK	6	0733	0733.3	.7	100.0			
	100 GORK	41	0947.8	0949.2	6.8	60.0			
	100 GORK		0947.8	0952.6		60.0D			
	29 UPIC	45	0953	0956	28				
	2800 OTTA	20	1200	1212	22	2.0	1.0		
	2800 OTTA	20	1320		90	1.6	1.0		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	1420	BOUL	45	1350.5	1355	15.5	5.0	2.0		
	2695	BOUL	45	1351.5	1357.5	28.5	20.0	5.0		
	2800	OTTA	20	1458	1502	40	1.6	0.8		
	2800	OTTA	20	1547	1548	10	1.2	0.6		
	2800	OTTA	20	1605	1620	75	1.2	0.6		
	7000	SAOP	32	1644.2		11.3	~4.7			
	7000	SAOP	22	1655.5		11.2	95.0			
	7000	SAOP	2	1714.3	1716.7	5.6	7.0	3.7		
	18	MCMA	6	1805	1809	6			2	
	18	MCMA	6	2001	2003	3			1	
	2800	OTTA	1	2211	2212.5	3	1.2	0.6		
13	2950	GORK	21	0509.7	0515.4	11.6	3.6	1.8		
	4995	CRON	8	0510.5	0511.5	3	15.0	5.0		
	4995	MANI	3	0510.2	0511.3	4	20.8	4.2		
	3750	TYKW	3	0510	0511.3	4	16.0	5.0		
	2950	GORK	3	0510.7	0511.4	1.7	10.8	4.0		
	2695	CRON	3	0510	0511	2.5	7.0	3.0		
	2695	MANI	1	0510.2	0511.4	3.6	5.0	2.5		
	8800	ATHN	1	0511.1	0512.3	2.7	5.3	1.8		
	4995	ATHN	1	0511.7	0512.3	2.1	5.6	1.9		
	2695	ATHN	1	0511.8	0512.4	1.7	6.2	2.5		
	2000	TYKW	1	0511	0511.4	1	2.0	1.0		
	1415	ATHN	1	0511.7	0512.3	1.6	2.0	.5		
	3750	TYKW	29	0514		20	3.0	1.0		
	100	GORK	6	0641.8	0642.2	.7	30.0	15.0		
	100	GORK	6	0655.6	0655.8	.6	20.0	10.0		
	100	GORK	6	0701.5	0702	.9	40.0	20.0		
	100	GORK	41	0716	0716.9	2.6	18.0			
	100	GORK		0716	0718.1		60.0			
	100	GORK	6	0722.7	0723.4	1.1	16.0	8.0		
	100	GORK	6	0740.8	0740.9	.4	45.0	20.0		
	100	GORK	41	0820.8	0821.2	2.8	100.0D			
	100	GORK		0820.8	0823.2		85.0			
	100	GORK	6	0834.7	0835.2U	.8	100.0D			
	100	GORK	6	0855.7	0855.9U	.9	100.0D			
	260	ONDR	45	1116	1120.5	7.5	15.0			
	2800	OTTA	21	1230	1600	285	2.4	1.2		
	18	MCMA	6	1301	1303	2			1	
	7000	SAOP	22	1343.4		77	23.7			
	2800	OTTA	22	1347	1357	52	19.0	6.4		
	4995	SGMR	20	1348	1356.7	41.3	21.1	5.3		
	2695	SGMR	20	1348	1356.7	40.9	16.9	4.2		
	1500	BERL	22	1348	1355.8	49	7.6	2.4		
	9500	BERL	22	1349	1357.3	56	11.0	4.0		
	8800	SGMR	20	1349 U	1357.6	37.2U	12.9	3.2U		
	3000	BERL	22	1349	1356.6	46	20.0	5.9		
	1415	ATHN	22	1349.7	1355	27.7	6.5	1.5		
	2700	PENN	20	1350	1356.8	44.4	38.2	14.3		
	2695	ATHN	22	1350.8	1357.3	39	18.5	4.9		
	8800	ATHN	22	1351.3	1357.6	54.2	16.0	6.0		
	4995	ATHN	22	1352 U	1357.3	33 U	13.2	3.8U		
	9400	HUAN	20	1353.7	1419.4	40	11.8	5.3		
	536	ONDR	45	1353.5	1354	5.5	40.0			
	960	PENN		1354.1	1354.6	6.7	8.2	1.3		
	930	BORD	41	1354	1354.6	1	15.0	3.0		
	808	ONDR	45	1354	1354.5	3.5	70.0			
	1415	SGMR	20	1355 U	1358.8	29.6U	5.5	1.4U		
	18	MCMA	41	1421	1422	7			1	
	18	MCMA	42	1517	1524	20			3	
	18	MCMA	42	1638	1640	54			2	
	2800	OTTA	32	1735		87	-1.8	-0.9		
	18	MCMA	41	1745	1750	5			2	
	18	MCMA	6	1755	1757	3			2	
	2800	OTTA	20	1930	2020	105	1.4	0.7		
	18	MCMA	41	1941	1949	15			1	
	18	MCMA	41	1941	1953	15			1	
	18	MCMA	6	2011	2012	2			1	
	18	MCMA	41	2043	2045	8			1	
	18	MCMA	6	2115	2118	4			2	
	18	MCMA	41	2132	2133	4			1	
14	18	MCMA	6	0059	0101	3			1	
	4995	CRON	3	0724	0725.5	2	6.0	2.0		
	7000	SAOP	22	1216		31 F	7.1			
	7000	SAOP	22	1252.8		16.8	4.7			
	9285	ARCE	22	1356.9	1438.8	63				
	2800	OTTA	21	1405	1450	225	3.6	1.8		
	18	MCMA	6	1429	1429	2			1	
	2695	SGMR	22	1431.1	1438.4	23.6	3.7	.9		
	8800	SGMR	22	1434.4	1447.2	25.8	12.2	3.0		
	4995	SGMR	22	1434.7	1444	25.3	10.4	2.6		
	9400	HUAN	20	1435.4	1447.3	45.8	14.2	3.7		
	7000	SAOP	42	1436.1	1438.6	26.9	9.6			
	7000	SAOP	2	1436.1	1438.6	9.1	9.6	4.7		
	15400	SGMR	22	1437.8	1447.1	22.7	16.2	4.0		
	8800	ATHN	20	1437.6	1445.6	35.9	11.5	3.8		
	4995	BOUL	3	1437	1438	2.5	11.0	3.0		
	2800	OTTA	1	1437.2	1438.2	3.5	3.0	1.0		
	2700	PENN	1	1437.2	1438.4	2.6	3.1	1.9		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1} PEAK	MEAN	INT	REMARKS
	2695	BOUL	3	1437.5	1439	2.5	5.0	2.0		
	7000	SAOP	22	1445.2		18.2	9.6			
	18	MCMA	6	1453	1456	3			1	
	4995	BOUL	8	2138.5	2139.5	1.5	49.0	18.0		
	9400	HUAN	1	2139.7	2140.3	1.3	40.6	15.1		
	2800	OTTA	1	2139.9	2140.2	1.1	5.0	2.5		
	2700	PENN	3	2139.9	2140.3	11.6	12.4	1.1		
	10700	PENN	3	2140	2140.5	9	15.8	1.6		
	2695	BOUL	8	2140.5	2141	1.5	5.0	2.0		
	2800	OTTA	29	2141		28	1.4	0.7		
	208	VORO	6	2223.5	2224	1	100.0	60.0		
15	18	MCMA	41	1417	1419	5			1	
	2800	OTTA	20	1450	1507	70	3.4	1.4		
	4995	SGMR	1	1748.1	1748.9	4	3.6	1.5		
	2695	SGMR	1	1748.5	1749.6	2	1.3	.5		
	18	MCMA	6	2331	2333	4			1	
16	9750	IRKU	1	0252	0255	1		2.5		
	9400	TYKW	3	0454.7	0455.5	4	11.0	4.0		
	9100	GORK	1	0455.3	0455.5	1.7	13.0	6.6		
	9400	TYKW	45	0513	0521.4	10	14.0	4.0		
	9100	GORK	1	0520.4	0521.6	3.3	21.0	10.5		
	9500	BERL	20	0703.5	0806.8	140	15.0			
	4995	CRON	21	0759	0804.5	37.5	12.0	4.0		
	8800	ATHN	20	0801.1	0802.1	10.5	6.9	2.6		
	3000	BERL	20		0804.7		9.6			
	1500	BERL	1	0804.3	0804.5	1.1	3.0	0.7		
	29	UPIC	45	0913	0913.5	1				
	9285	ARCE	3	0956.6	0957.3	2.6				
	9100	GORK	1	0956.6	0957.3	4.2	25.5	12.7		
	8800	ATHN	4	0956.3	0957	2.4	18.9	5.2		
	4995	ATHN	4	0956	0957.4	3.8	11.4	2.9		
	1420	ARCE	22	0956.6	1000	8				
	100	GORK	6	1016.4	1017.9	2.3	20.0	10.0		
	650	GORK	2	1017.2	1017.7	1	3.3			
	18	MCMA	6	1332	1334	3			1	
	9285	ARCE	20	1441	1451.2	116 U				
	7000	SAOP	22	1631.2		17.3	6.0			
17	18	MCMA	6	1145	1147	2			1	
	7000	SAOP	25	1356.1			9.5			
	29	UPIC	45	1415	1416	4.5				
	536	ONDR	45	1418	1418.5	1.5	60.0			
	18	MCMA	6	2248	2250	3			1	
18	100	HIRA	5	0054.8	0054.8	1.5	60.0	15.0		
	100	GORK	44	0406 E		114		5.0		
	2695	CANR	3	0905.5	0906	1	4.0	1.0		
	260	ONDR	5	1213	1213	.5	35.0			
	245	SGMR	6	1213	1213.1	.2	20.9	5.0		
	237	TRST	45	1213	1213.1	.2	54.0	13.0		
	113	POTS	5	1213.1	1213.2	.1	280.0	85.0		
	29	UPIC	45	1213	1225.5	13				
	260	ONDR	45	1223.5	1225.5	4.5	40.0			
	245	SGMR	6	1224.2	1224.6	1.5	40.1	8.0		
	237	TRST	41	1224.3	1224.7	1.2	120.0			
	113	POTS	45	1224.6	1224.7	.9	100.0	10.0		
	23	POTS	5	1224.5	1225	1.3	15000.0	5000.0		
	260	ONDR	45	1233	1233	1.5	20.0			
	18	MCMA	6	1307	1309	3			2	
	9500	BERL	20	1312.5	1315.7	7.5	5.6			
	7000	SAOP	2	1313.8	1314.7	2.2	6.6	3.3		
	2695	CANR	45	1313.5	1314.5	3.5	4.0	1.0		
	1500	BERL	46	1313.4	1317.3	5.1	275.0	27.0		
	1420	BOUL	45	1313	1317	5.5	57.0	10.0		
	1415	SGMR	4	1313.5	1316.8	14.2	455.0	170.0		
	930	BORD	41	1313	1316	6	258.0	15.0		
	808	ONDR	45	1313.5	1316.5	5.5	140.0			
	3000	BERL	1	1314.5	1315.4	3.8	3.1	0.8		
	1420	CANR	45	1314	1319.5	6	353.0	16.0		
	1415	ATHN	46	1314.3	1316.8	4.2	249.0	66.0		
	2695	BOUL	3	1315	1315.5	1.5	5.0	2.0		
	606	SGMR	1	1315.4	1316.8	9.6	2.0	.6		
	9500	BERL	20	1413	1420	13	3.4	1.8		
	510	POTS	45	1417 E	1417.5U	1.5D	15.0	5.0		
	18	MCMA	42	1440	1445	9			1	
	930	BORD	5	1531	1531.7	1	13.0	1.0		
	4995	CANR	3	1712.5	1713.5	3	10.0	3.0		
	410	SGMR	6	1715.9	1716	.5	1.2	.6		
	245	SGMR	6	1715.7	1716.2	.8	5.1	2.5		
	18	MCMA	6	1715	1716	2			2	
	7000	SAOP	22	1737.8		13.6	6.2			
	18	MCMA	41	1915	1919	7			1	
	245	SGMR	6	1916.9	1918.4	1.8	21.6	7.1		
	606	SGMR	1	1918.3	1918.4	.4	1.3	.6		
	410	SGMR	6	1918.3	1919.4	.2	2.3	1.2		
	2800	OTTA	20	1920	2015	140	1.4	0.7		
	18	MCMA	6	2041	2042	2			1	
19	1420	CRON	45	0405	0406.5	2	18.0	6.0		

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19	260	ONDR	41	1202	1250.5	80	35.0			
	18	MCMA	6	1312	1314	3			1	
	7000	SAOP	22	1529.3		45.7	1.7			
	7000	SAOP	22	1653.5		31.8	97.0			
	2800	OTTA	20	1748	1755	50	1.0	0.5		
	208	VORO	48	2220	2247	30	736.0	116.0		
20	2695	PENT	1	0033.6	0033.8	1	1.6	0.8		
	2695	MANI	1	0033.5	0033.7	.7	3.0	1.0		
	1415	MANI	1	0033.5	0033.6	.7	3.3	1.6		
	606	MANI	1	0033.4	0033.6	.8	8.1	1.6		
	200	HIRA	45	0151	0152.8U	1.8U	140.0	30.0		
	1500	BERL	1	0715.5	0716.4	2	1.0			
	260	ONDR	41	0750	1034	440	35.0			
	245	SGMR	44	0959 E	1219.1	808 D	19.8			
	204	KIEV	42	1145		180 D	20.0	4.0		
	208	VORO	44	2100	2147	120	19.0	16.0		
	18	MCMA	6	1228	1225	3			1	
	18	MCMA	6	1238	1239	2			1	
	4995	CANR	3	1255.5	1256.5	3.5	10.0	3.0		
	2800	OTTA	20	1330	1410	110	2.0	1.0		
	18	MCMA	6	1337	1340	9			2	
	245	BOUL	6	1758	1759	2			2	
	410	SGMR	6	1810.5	1811.4	2.9	3.4	.8		
	245	SGMR	6	1810.5	1812.9	3.6	32.0	8.0		
	245	BOUL	41	1823	1824	2			2	
	245	BOUL	41	1935	1937	3			2	
	245	BOUL	41	1944	1946	5			1	
	2800	OTTA	20	2135	2150	60	1.0	0.8		
21	200	HIRA	45	0105.5	0107	4.5	140.0	15.0		
	100	HIRA	5	0105.8	0106	1	55.0	10.0		
	260	ONDR	41	0640	1401.5	510	40.0			
	100	GORK	44	0645		190 D		5.0		
	100	HIRA	27	0650	0736	140 D	20.0	10.0		
	204	KIEV	42	0700 E		480 D	41.0	7.0		
	200	GORK	44	0800 U		120 D		5.0		
	245	SGMR	44	0958 E	2052.1	810 D	9.5			
	29	UPIC	45	1043	1053.5	34				
	950	GORK	40	1219.4	1220.4	1.9	1.6	0.8		
	2800	OTTA	32	1225	1305	95	-3.0	-1.5		
	2830	ARCE	1	1305.9	1306.1	1.5				
	10700	PENN	1	1306.9	1307.1	2.2	7.4	0.9		
	9500	BERL	2	1306.5	1307	3.1	7.4			
	9285	ARCE	1	1306.8	1307	2.3				
	2800	OTTA	20	1449	1501	30	1.4	0.7		
	2800	OTTA	21	1557	1603	35	1.4	0.7		
	8800	SGMR	1	1558.8	1559.7	2.1	5.3	2.0		
	7000	SAOP	2	1558.8	1559.6	2.8	12.0	6.0		
	4995	CANR	8	1558.5	1559.5	2.5	12.0	4.0		
	4995	BOUL	3	1558	1559.5	2.5	17.0	6.0		
	2700	PENN	3	1558.8	1559.8	2	15.0	6.0		
	2695	CANR	8	1558	1559	2	7.0	3.0		
	2695	ATHN	1	1558.6	1559 U	2.7	5.5U	2.7U		
	1415	SGMR	4	1558.4	1559.4	6.2	19.5	5.0		
	9285	ARCE	22	1559.2	1559.9	23.5				
	2830	ARCE	20	1559	1559.7	50 U				
	2800	OTTA	1	1559	1559.6	3	6.8	3.0		
	2695	BOUL	8	1559	1600	3	8.0	3.0		
	2695	SGMR	1	1559	1600	4.8	7.6	2.0		
	1420	CANR		1559	1600	2	13.0	5.0		
	1420	BOUL	8	1559	1559.5	3	15.0	6 .0		
	1415	ATHN	4	1559	1559.7	2.2	16.0	4.6		
	960	PENN	1	1559.1	1559.7	1.8	2.5	1.7		
	606	SGMR	2	1559	1559.6	3	1.3	.5		
	2800	OTTA	20	1922	1930	16	.8	0.4		
	18	MCMA	41	2019	2023	5			1	
	2800	OTTA	24	2140		15	1.6			
22	100	HIRA	45	0032.2	0032.5	.8	75.0	25.0		
	100	HIRA	45	0054.5	0054.9	1.5	50.0	15.0		
	100	HIRA	5	0128.3	0128.4	.7	50.0	15.0		
	100	HIRA	5	0141	0141.1	.5	110.0	40.0		
	100	HIRA	45	0240	0240.2	4	115.0	20.0		
	100	HIRA	45	0322	0322.5	1	100.0	30.0		
	100	GORK	44	0742		198 D		5.0		
	260	ONDR	44	0830	0832.5	400	50.0			
	237	TRST	45	0832.5	0832.6	.2	140.0	35.0		
	204	KIEV	42	0849		430 D	46.0	9.0		
	200	GORK	44	0857		123 D		5.0		
	245	SGMR	44	0955 E	1840.2	813 D	30.0			2.3
	245	BOUL	42	1223 E	1231	142			1	
	208	VORO	44	2110	2151	230	25.0	15.0		
	100	GORK	41	0811.4	0812	3.1	30.0			
	100	GORK		0811.4	0813.9		35.0			
	100	GORK	6	0827.7	0828.2	.8	40.0	20.0		
	113	POTS	40	0955.1	0957.3	5.3	360.0	20.0		
	100	GORK	6	0955.1	0958.4	6	550.0			
	29	UPIC	45	0955	0956	3				
	200	GORK	6	0958.1	1007.4	4	150.0	10.0		

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22	2695	CANR	3	0959	1001	3	4.0	1.0		
	221	ABST	3	1000	1000.8	1.2	46.0	8.0		
	29	UPIC	5	1010	1010	.5				
	29	UPIC	45	1120	1120	1				
	29	UPIC	5	1208.5	1208.5	.5				
	113	POTS	45	1209.2	1209.3	.1	200.0	50.0		
	29	UPIC	45	1221	1222.5	2				
	4995	CANR	45	1222	1225.5	11	9.0	4.0		
	9500	BERL	1	1252.5	1253.3	1.5	7.5			
	10700	PENN	1	1253.4	1253.5	1.1	5.3	1.9		
	2800	OTTA	24	1330		55	3.3			
	9400	HUAN	21	1404.3	1429.2	53.9	6.8	1.9		
	10700	PENN	3	1407.8	1408.2	4.8	11.0	1.8		
	9500	BERL	4	1407.8	1408.2	1.2	13.0	4.6		
	8800	SGMR	3	1407.9	1408.3	2.4	11.9	2.2		
	8800	ATHN	3	1407.8	1408.4	2.2	11.9	4.0		
	7000	SAOP	4	1407.5	1408.3	9.7	15.5	7.8		
	4995	CANR	8	1407	1408	2.5	11.0	4.0		
	4995	BOUL	3	1407	1407.5	1.5	12.0	3.0		
	4995	SGMR	1	1407.8	1409.2	2.7	6.9	1.2		
	3000	BERL	1	1407.5	1408.5	1.7	2.6	0.9		
	2695	CANR	3	1407	1407.5	1.5	3.0	1.0		
	2695	ATHN	1	1407.1	1408.5	2.6	2.8	1.4		
	10500	BERN	4	1408.2	1408.3	1.5	19.0			
	7000	SAOP	29	1409.2		2.3				
	9400	HUAN	1	1418.1	1418.5	1.3	15.3	4.9		
	2800	OTTA	20	1450	1511	105	7.4	2.6		
	2695	CANR	45	1457.5	1511	50	9.0	2.0		
	29	UPIC	45	1500	1500.5	1				
	18	MCMA	6	1500	1501	2			1	
	2695	ATHN	20	1502.9	1511.3	41.2	4.3	1.4		
	2695	SGMR	20	1503.8	1511.5	25.3	6.6	2.2		
	1420	BOUL	45	1503	1511.5	19.5	8.0	2.0		
	1415	ATHN	20	1504.5	1511.2	42.3	9.4	2.4		
	4995	SGMR	1	1506.6	1511.3	9.3	4.0	1.1		
	1415	SGMR	22	1507.2	1511.4	14.3	7.0	2.4		
	1420	CANR	45	1509	1512	17.5	7.0	1.0		
	2695	BOUL	3	1510.5	1511.5	2.5	4.0	1.0		
	1420	BOUL	45	1615.5	1619.5	17.5	10.0	2.0		
	4995	SGMR	1	1618.9	1622.2	9	1.3	.6		
	2695	SGMR	20	1618.6	1621.6	11.4	1.9	.9		
	1415	SGMR	1	1619.4	1619.8	7.1	6.3	1.3		
	1415	ATHN	1	1619.1	1619.8	5 U	9.9	2.8U		
	1420	CANR	45	1620	1620.5	6.5	7.0	2.0		
	2695	BOUL	45	1630	1633.5	19	14.0	6.0		
	2695	BOUL	3	1707.5	1608	1.5	4.0	1.0		
	2695	SGMR	20	1741.6	1745	11.9	2.9	1.3		
	4995	SGMR	20	1742	1745	16.5	3.4	1.5		
	4995	CANR	3	1759.5	1801.5	4	8.0	2.0		
	4995	CANR	45	1817	1832.5	35.5	29.0	7.0		
	4995	SGMR	22	1818.5	1833.2	45.4	26.5	9.0		
	2695	CANR	45	1818.5	1833	30	28.0	6.0		
	4995	BOUL	45	1819.5	1832.5	31	42.0	11.0		
	1420	BOUL	45	1819.5	1825.5	7.5	2.0	1.0		
	18	MCMA	41	1819	1821	7			2	
	2800	OTTA	46	1820	1833	32	27.0	9.4		
	2695	BOUL	45	1820	1825.5	8	10.0	3.0		
	2695	SGMR	22	1820	1833.2	41.7	30.5	10.0		
	1415	SGMR	20	1825.2	1833.8	23.2	2.6	1.0		
	15400	SGMR	20	1829.2	1834.9	27	17.5	8.0		
	7000	SAOP	46	1830.2	1833.2	12.7	28.5	1.5		
	1420	BOUL	45	1830.5	1833	19	3.0	1.0		
	9400	HUAN	20	1831.5	1834.7	20.4	15.3	5.5		
	10700	PENN	20	1832	1834.9	16.9	8.8	4.4		
	8800	SGMR	20	1832	1836	22.7	8.8	4.0		
	7000	SAOP	29	1842.9		11.5				
	18	MCMA	6	1943	1945	4			1	
	18	MCMA	6	2000	2002	2			2	
	2800	OTTA	20	2010	2045	85	2.4	1.2		
	245	BOUL	42	2010	2025	33			1	
	10700	PENN	20	2112.5	2148.7	80.3	11.8	5.9		
	4995	BOUL	45	2144	2150.5	29.5	112.0	29.0		
	2800	OTTA	4	2144	2151	25	81.0	12.0		
	2700	PENN	45	2144.3	2151.1	28.2	130.0	16.5		
	100	HIRA	27	2144	2239.5	143	40.0	15.0		
	2695	BOUL	45	2145	2151	24.5	60.0	10.0		
	1420	BOUL	8	2146	2151	10	17.0	6.0		
	606	SGMR	1	2146.9	2150.5	6.6	2.6	1.3		
	18	MCMA	48	2147	2151	6			3	
	10700	PENN	3	2148.7	2151	22.7	23.5	7.1		
	9400	HUAN	3	2148	2150.9	7.7	37.5	13.6		
	3750	TYKW	45	2148 E	2151	25 D	85.0	13.0U		
	2000	TYKW	45	2148 E	2151	25 D	60.0	9.0U		
	1415	SGMR	3	2148.5	2151.3	13.1	21.2	4.0		
	960	PENN	1	2148.2	2151.1	8.5	3.8	1.1		
	100	HIRA	45	2148	2150	5	160.0	60.0		
	9400	TYKW	3	2149 E	2151	25 D	30.0	5.0U		
	410	SGMR	6	2149.2	2150.6	3.8	3.7	1.5		
	245	SGMR	6	2149.2	2154.4	11.2	51.5	8.0		
	200	HIRA	45	2149	2151	21	130.0	30.0		

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	15400	SGMR	3	2150.2	2151.1	4.8	12.1	3.0		
	8800	MANI	3	2150.6U	2150.8	.5	107.0U	42.7U		SRISE
	4995	MANI	3	2150.5U	2150.8	.6	168.0U	44.2U		SUNRISE
	2695	MANI	3	2150.3U	2150.8	1 U	118.0U	34.5U		SUNRISE
	1415	MANI	3	2150.3U	2151	1 U	163.0U	8.0U		SUNRISE
	18	MCMA	41	2159	2201	3			1	
	2800	OTTA	31	2209	2230	55	-3.4	-1.7		
	18	MCMA	41	2219	2222	4			1	
	2695	PENT	20	2330	2425	120	3.0	1.5		
23	3750	TYKW	20	0110	0120	60	5.0	2.0		
	100	HIRA	45	0111.3	0112	1.5	130.0	45.0		
	100	HIRA	45	0114.8	0115.2	1.2	55.0	20.0		
	2800	OTTA	1	0130.5	0131	1.5	5.2	2.6		
	100	HIRA	5	0150.5	0150.5	1	110.0	30.0		
	100	HIRA	45	0249.3	0250.4	2	40.0	15.0		
	100	HIRA	45	0311.9	0312	1.7	80.0	20.0		
	100	HIRA	27	0326	0348	160	20.0	10.0		
	200	GORK	44	0400 E		540 D		5.0		
	100	GORK	44	0400 E		540 D		15.0		
	221	ABST	41	0700	0738	240	12.0			
	210	IZMI	44	0700		300	30.0			
	204	KIEV	44	0700 E		530 D	84.0	16.0		
	245	SGMR	44	0954 E	1424.4	816 D	51.5			
	208	VORO	44	2100	2315	240	21.6	13.0		
	210	IZMI	41	0705	0705.8	2	160.0			
	23	POTS	40	0733	0735.8	3.8	5000.0	250.0		
	113	POTS	45	0734.6	0734.6	.3	200.0	20.0		
	100	HIRA	45	0734.4	0734.6	3	60.0	15.0		
	29	UPIC	45	0735.5	0736.5	2.5				
	23	POTS	5	0752.5	0752.7	.9	9000.0	3000.0		
	29	UPIC	5	0753	0753.5	1				
	100	HIRA	5	0757.5	0757.5	1	100.0	40.0		
	113	POTS	5	0928.1	0928.2	.2	300.0	100.0		
	29	UPIC	5	0928.5	0929	1				
	23	POTS	5	0928.2	0928.3	.9	25000.0	8000.0		
	8800	ATHN	3	0942.7	0945.1	3.5	13.5	3.9		
	29	UPIC	5	1037.5	1037.5	.5				
	100	GORK	41	1054.3	1056.9	13.7	50.0D			
	100	GORK		1054.3	1058.8		60.0D			
	100	GORK		1054.3	1107.7U		200.0			
	113	POTS	45	1056.2	1058.5	3.6	700.0	70.0		
	200	GORK	6	1058.7	1059.1	.8	100.0D			
	2695	SGMR	20	1211.9	1221.5	22.6	3.6	1.5		
	4995	SGMR	20	1216.1	1221.3	13	4.4	2.0		
	410	SGMR	6	1218.5	1218.7	7.7	6.6	1.5		
	100	GORK	48	1218	1220.4	3.6	250.0			
	3000	BERL	1	1219.7	1220.4	1.8	2.0			
	1500	BERL	2	1219.7	1219.8	1.8	3.7	0.7		
	29	UPIC	45	1219	1220.5	4				
	23	POTS	45	1220.8	1221.1	.8	6000.0	1500.0		
	9500	BERL	20	1313	1339	44	12.0			
	23	POTS	45	1315.8	1316.1	1.8	15000.0	3000.0		
	29	UPIC	45	1316	1316.5	1				
	2695	SGMR	20	1330.1	1339.2	14.9	5.2	2.0		
	8800	ATHN	1	1337.4	1339.2	4.7	5.8	1.9		
	4995	BOUL	3	1337.5	1338.5	1.5	14.0	5.0		
	2800	OTTA	21	1337	1342	11	1.2	0.6		
	2695	ATHN	1	1337.4	1339.1	7.9	4.2	1.4		
	8800	SGMR	1	1338.8	1339.5	4.9	3.4	1.5		
	4995	CANR	3	1338	1339.5	3	9.0	3.0		
	4995	SGMR	1	1338.7	1339.3	5.1	5.4	2.0		
	3000	BERL	2	1338.2	1339.2	2.5	3.5			
	2800	OTTA	1	1338	1339	2	3.6	1.4		
	2695	CANR	3	1338	1339	2	3.0	1.0		
	1500	BERL	4	1338.8	1339.3	1.1	23.0	8.8		
	1420	BOUL	8	1338.5	1339	1	26.0	9.0		
	1415	SGMR	3	1338.9	1339.1	4.7	28.4	5.5		
	1415	ATHN	3	1338.6	1339.1	1.8	26.1	8.6		
	2695	BOUL	3	1339	1339.5	1.5	4.0	1.0		
	1420	CANR	8	1339	1339.5	1	22.0	8.0		
	410	SGMR	6	1339	1339.8	7	10.0	2.5		
	18	MCMA	6	1340	1342	3			2	
	18	MCMA	6	1525	1529	5			2	
	18	MCMA	6	1539	1542	4			3	
	7000	SAOP	32	1620.2		9.5	-10.1			
	2800	OTTA	21	1640	1708	155	4.2	2.1		
	7000	SAOP	22	1712		10.4	5.1			
	4995	SGMR	20	1738.7	1741.5	11.3	6.3	3.1		
	2695	SGMR	1	1738.5	1741.5	9.5	6.3	3.1		
	4995	CANR	45	1739.5	1742	3.5	11.0	4.0		
	7000	SAOP	4	1740.8	1742.3	2.3	5.2	2.5		
	4995	BOUL	45	1740	1740.5	2.5	14.0	4.0		
	2800	OTTA	1	1740.5	1741.5	3	4.8	2.8		
	2695	BOUL	3	1740	1742	4.5	6.0	2.0		
	2695	CANR	45	1740	1741.5	3	6.0	2.0		
	1420	BOUL	45	1740	1741.5	2.5	8.0	3.0		
	1415	SGMR	3	1740.5	1741.4	6.7	10.4	5.2		
	606	SGMR	1	1740.5	1741.1	5.1	2.5	1.3		
	410	SGMR	6	1740.4	1741.3	2.6	7.8	3.6		

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23	245	SGMR	6	1740	1742.4	6.1	42.9	10.2		
	1420	CANR	45	1741	1742	3	7.0	2.0		
	2800	OTTA	29	1743.5		10	1.6	0.8		
	18	MCMA	6	1810	1812	2			1	
	18	MCMA	41	1851	1856	8			1	
	7000	SAOP	22	1920.2		21.2	10.4			
	2800	OTTA	20	1940	2010	80	2.4	1.2		
	245	BOUL	42	2031	2032	60			2	
	15400	SGMR	3	2054.3	2054.5	2.1	49.6	16.1		
	9400	HUAN	8	2054.2	2054.4	1.9	44.3	13.9		
	8800	SGMR	3	2054.4	2054.6	.7	23.6	7.9		
	100	HIRA	45	2132	2132.1	1	75.0	10.0		
	2800	OTTA	21	2150	2215	110	1.8	0.9		
	2695	BOUL	21	2254.5	2257	8	6.0	2.0		
	2695	PENT	1	2254	2256.5	6	5.2	2.6		
	245	BOUL	42	2346	0018	41			1	
24	3750	TYKW	20	0015	0110	130	4.0	2.0		
	2000	TYKW	20	0020	0045	80	4.0	2.0		
	3750	TYKW	20	0244	0251	15	3.0	1.0		
	3750	TYKW	1	0313	0317	8	2.0	1.0		
	3750	TYKW	20	0400	0430	90	4.0	2.0		
	200	GORK	44	0406 E		475 D		5.0		
	100	GORK	44	0412 E		528 D		5.0		
	260	ONDR	41	0650	1317	500	40.0			
	221	ABST	41	0700	0711.2	240	11.0			
	210	IZMI	44	0700		300	40.0			
	204	KIEV	44	0700 E		480 D	103.0	11.0		
	245	SGMR	44	0952 E	1529.9	819 D	45.1			
	100	GORK	41	0530.9	0539.1	13.7	400.0			
	100	GORK		0530.9	0544.2		600.0			
	100	HIRA	45	0536	0537.8	2.5	55.0	20.0		
	1420	CRON	3	0537	0538	2.5	2.0	1.0		
	113	POTS	45	0543.5E	0544 U	1.5D	300.0	30.0		
	100	HIRA	5	0543.5	0543.8	1	80.0	30.0		
	23	POTS	5	0543.5E	0544 U	1.2D	10000.0	3000.0		
	1420	CRON	8	0626.5	0627.5	2	3.0	1.0		
	1415	ATHN	1	0626.2	0627.1	2.3	3.2	1.1		
	650	GORK	1	0626.9	0627.2	1	1.4	0.7		
	225	HARS	45	0626.5	0627.5	2	90.0	30.0		
	200	GORK	41	0626.7	0626.7	2.3	200.0			
	200	GORK		0626.7	0628.7		200.0			
	200	HIRA	45	0626	0627	2.5	140.0D	50.0		
	100	GORK	6	0626.5	0627.2U	1.4	40.0D			
	100	HIRA	45	0626.5	0627	1.5	140.0	70.0		
	113	POTS	45	0638.6	0638.8	1.1	650.0	150.0		
	23	POTS	5	0638.5	0639.1	1.3	5000.0	1500.0		
	100	GORK	6	0642.9	0643 U	.5	40.0D			
	100	HIRA	5	0642.7	0642.9	1	70.0	30.0		
	113	POTS	45	0709.1	0709.1	.6	100.0	20.0		
	100	GORK	41	0715.3	0722.1	23.1	250.0			
	100	GORK		0715.3	0730.4		150.0			
	100	HIRA	45	0721	0721.5	2	110.0	50.0		
	1420	CANR	3	0732.5	0733.5	3.5	2.0	1.0		
	2695	CANR	3	0733.5	0735	3.5	3.0	1.0		
	100	GORK	41	0817.7	0817.9U	40	40.0D			
	100	GORK		0817.7	0850.4U		40.0D			
	113	POTS	45	0849.5	0850.1	.8	200.0	20.0		
	100	HIRA	45	0850.5	0851	2	60.0	25.0		
	100	GORK	41	0943.6	0946.5U	9.7	50.0D			
	100	GORK		0943.6	0952.2U		50.0D			
	29	UPIC	45	0945	0951.5	10				
	1500	BERL	40	0946	0953.2	12	2.9	1.0		
	113	POTS	40	0946.3	0946.4	6.6	200.0	5.0		
	23	POTS	41	0946.4	0946.5	7.2	3000.0	20.0		
	1420	CANR	3	0947	0950.5	6.5	3.0	1.0		
	2800	OTTA	21	1155	1230	125	2.6	1.6		
	18	MCMA	41	1303	1305	3			1	
	9500	BERL	1	1305	1305.5	1.3	3.0			
	1500	BERL	2	1305.5	1305.7	.9	2.9	1.0		
	1420	CANR	45	1309	1313	20.5	7.0	2.0		
	1500	BERL	22	1312	1317	19	2.3			
	245	SGMR	6	1313.6	1318	9.4	47.4	9.0		
	9500	BERL	20	1314	1320	11	4.3			
	2695	BOUL	45	1314	1317	3.5	7.0	2.0		
	536	ONDR	45	1314	1316.5	5.5	30.0			
	29	UPIC	45	1314	1316	7				
	1415	SGMR	1	1315.5	1318.1	6.5	2.0	1.0		
	808	ONDR	45	1315.5	1316	1.5	55.0			
	113	POTS	45	1315.9	1316.2	3.4	1400.0	140.0		
	9285	ARCE	1	1316.8	1317.2	1.5				
	2830	ARCE	1	1316	1316.9	3.5				
	2800	OTTA	20	1316 E	1317	23 D	5.8			
	1420	BOUL	3	1316	1317	1.5	2.0	1.0		
	606	SGMR	1	1316.1	1316.2	2.5	3.2	1.5		
	23	POTS	45	1316	1316.4	3.7	15000.0	5000.0		
	410	SGMR	6	1317.2	1318	3	1.2	.5		
	237	TRST	41	1317.3	1317.9	1.1	97.0			
	18	MCMA	6	1317	1318	3			1	
	18	MCMA	6	1330	1332	3			2	

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24	2830	ARCE	23	1357.5	1433.4	76				
	9285	ARCE	21	1402.4	1434.6	62 U				
	2800	OTTA	21	1405	1440	185	5.8	2.6		
	1420	CANR	45	1409	1413.5	60	244.0	61.0		
	960	PENN	45	1409.9	1413	13.7	44.9	5.9		
	4995	CANR	8	1410.5	1413	11.5	322.0	86.0		
	4995	BOUL	45	1410	1412.5	13.5	415.0	153.0		
	4995	ATHN	4	1410 U	1412.5	4 U	319.0	100.3U		
	2695	ATHN	4	1410.7	1412.6	9.4	281.4	93.8		
	1415	SGMR	4	1410.6	1412.5	9.4	94.0	19.0		
	9500	BERL	4	1411.2	1412.3	18	124.0	14.0		
	8800	SGMR	4	1411.4	1412.5	4.6	266.0	55.0		
	8800	ATHN	4	1411.7	1412.6	5.3	165.2	55.1		
	7000	SAOP	3	1411.4	1413.1	3.6	214.7	109.8		
	4995	SGMR	4	1411.5	1412.5	5.5	320.0	65.0		
	2830	ARCE	3	1411.5	1412.5	5				
	2800	OTTA	4	1411	1412.5	5	308.0	39.0		
	2700	PENN	3	1411.4	1412.4	9.8	458.0	499.0		
	2695	BOUL	45	1411.5	1413.5	10.5	311.0	108.0		
	2695	CANR	8	1411.5	1414	9.5	124.0	55.0		
	2695	SGMR	4	1411.2	1412.5	5.8	318.0	64.0		
	1500	BERL	4	1411	1412.5	12	91.0	35.0		
	1420	BOUL	8	1411.5	1413.5	5	85.0	32.0		
	1415	ATHN	4	1411.4	1412.5	6.4	91.2	30.2		
	808	ONDR	45	1411.5	1412.5	3.5	95.0			
	606	SGMR	4	1411.6	1412.5	4.2	28.8	6.0		
	536	ONDR	45	1411	1412.5	5	50.0			
	510	POTS	45	1411.5E	1412.5	4.5D	25.0	6.0		
	410	SGMR	6	1411.6	1412.7	7.6	34.4	6.8		
	260	ONDR	45	1411	1412	6	130.0			
	245	SGMR	6	1411	1412.6	5.4	228.0	25.0		
	234	POTS	45	1411.8	1412.6	1.2	1400.0	200.0		
	225	HARS	45	1411.5	1412.5	2	380.0	130.0		
	113	POTS	45	1411.1	1412.8	3.9	2500.0	800.0		
	18	MCMA	48	1411	1416	6			3	
	15400	SGMR	3	1412	1412.4	1.1	32.9	7.0		
	10700	PENN	3	1412.2	1412.5	13.2	127.0	4.8		
	10500	BERN	3	1412.3	1412.5	1.5	137.0			
	9400	HUAN	8	1412.3	1412.5	1.3	171.5	53.6		
	9400	SLOU	3	1412	1413	2	176.0			
	9285	ARCE	3	1412	1412.5	3				
	29	UPIC	45	1412		4				
	15400	SGMR	20	1413.2	1426.5	44.7	9.3	4.0		
	7000	SAOP	29	1415		54.5				
	8800	SGMR	30	1416	1415	53.5	3.7	1.8		
	2800	OTTA	29	1416		9	8.8	3.0		
	4995	SGMR	30	1417	1417	47.1	9.8	4.0		
	2695	SGMR	30	1417	1417	58.6	8.4	4.0		
	2695	CANR	45	1426.5	1434	12.5	32.0	10.0		
	1500	BERL	46	1426	1433.4	25	27.0	6.6		
	960	PENN	40	1427.7		2.2				
	18	MCMA	42	1427	1431	4			1	
	2700	PENN	3	1428.4	1433.6	11	61.1	30.5		
	2695	BOUL	45	1428	1434	11	39.0	12.0		
	2695	SGMR	22	1428.7	1433.5	29.3	44.2	20.0		
	2695	ATHN	4	1428.4	1433.5	13.6	37.8	12.6		
	1420	BOUL	45	1428.5	1434	11	23.0	7.0		
	1415	SGMR	22	1428.4	1433.6	32.4	25.2	10.0		
	2800	OTTA	4	1429.5	1433.3	10	40.0	13.0		
	1415	ATHN	4	1429.7	1433.5	12.1	28.5	9.7		
	4995	CANR	3	1430	1433	7.5	25.0	9.0		
	4995	SGMR	22	1430.8	1433.6	26.6	20.7	9.0		
	410	SGMR	6	1430	1433.4	9.9	1.8	.5		
	9500	BERL	20	1431.5	1433.5	8.5	7.3			
	8800	SGMR	20	1431.2	1433.5	22	13.4	6.0		
	4995	BOUL	45	1431	1433	6	32.0	9.0		
	4995	ATHN	4	1431 U	1434	6	25.1	8.0U		
	10700	PENN	20	1432	1434.4	26.2	5.1	2.5		
	606	SGMR	2	1432.9	1433.5	3.4	2.6	1.0		
	8800	ATHN	1	1433.4	1434.5	4.3	9.5	3.8		
	2695	BOUL	3	1442.5	1445.5	4	11.0	4.0		
	2695	CANR	45	1442.5	1444.5	6	5.0	2.0		
	2695	ATHN	2	1442	1445.2	4.6	9.8	2.8		
	1420	BOUL	45	1442.5	1444	5.5	4.0	1.0		
	2800	OTTA	1	1443.5	1445.1	4	9.8	3.3		
	18	MCMA	6	1443	1447	5				
	4995	CANR	8	1444.5	1445	3	17.0	5.0	3	
	4995	BOUL	3	1444	1444.5	2	17.0	7.0		
	1415	ATHN	2	1444.3	1446.9	5.1	4.6	1.7		
	18	MCMA	41	1506	1508	5			1	
	18	MCMA	41	1534	1537	6			1	
	4995	CANR	3	1550.5	1553	7.5	7.0	2.0		
	8800	SGMR	22	1552.7	1559.4	16.5	16.5	6.0		
	1420	CANR	3	1552	1553	4.5	4.0	1.0		
	1420	BOUL	3	1552.5	1554	2.5	4.0	1.0		
	4995	SGMR	1	1553	1554	6.2	2.8	1.0		
	2800	OTTA	1	1553	1553.7	3	4.6	1.6		
	2695	CANR	3	1553	1554	2	4.0	1.0		
	2695	SGMR	2	1553.1	1554.1	8.1	3.7	1.0		
	2695	ATHN	1	1553.2	1553.2	6.7	7.0	2.4		

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APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
24	1415 SGMR	2	1553	1553.9	5	4.0	1.5		
	1415 ATHN	1	1553.2	1553.6	1.5	3.4	1.1		
	606 SGMR	2	1553.2	1553.7	1.4	2.6	1.0		
	410 SGMR	6	1553.5	1555.2	2.1	4.7	2.0		
	29 UPIC	45	1605	1605.5	1.5				
	18 MCMA	6	1605	1607	4			2	
	18 MCMA	6	1648	1650	3			2	
	2700 PENN	8	1650.4	1650.4	.2	38.2			
	960 PENN	45	1650.2	1650.9	1	17.4	3.5		
	2695 BOUL	3	1653.5	1654	1.5	6.0	2.0		
	18 MCMA	6	1720	1722	3			2	
	2800 OTTA	21	1725	1745	40	1.8	0.9		
	9400 HUAN	20	1734.1	1800.8	39.7	8.5	1.9		
	18 MCMA	6	1738	1740	3			1	
	1420 CANR	8	1741.5	1743	2	7.0	3.0		
	4995 SGMR	1	1742.9	1744	2.6	6.8	2.7		
	2800 OTTA	1	1742.5	1744	3.5	8.2	2.1		
	2695 SGMR	1	1742.9	1744	2.4	7.1	3.0		
	1420 BOUL	3	1742.5	1744	2.5	1.0			
	2695 BOUL	8	1743	1744	2.5	9.0	3.0		
	7000 SAOP	32	1858.4		23.4	-10.1			
	10700 PENN	20	1918.8	1927.2	47.2	21.2	4.6		
	2800 OTTA	21	1918	1935	52	7.4	3.7		
	4995 SGMR	46	1920.5	1925.1	26.7	33.3	15.0		
	4995 SGMR	46		1927.2		52.0			
	9400 HUAN	21	1921.7	1927.2	29.1	27.2	6.6		
	2695 SGMR	46	1921.5	1925	25.7	24.6	18.0		
	2695 SGMR	46		1927.2		60.9			
	18 MCMA	41	1921	1927	8			3	
	8800 SGMR	4	1922.8	1927.2	19.4	33.3	10.1		
	4995 BOUL	45	1922	1926.5	18.5	70.0	14.0		
	2800 OTTA	46	1922.8	1927.2	10	59.0	13.5		
	2695 BOUL	45	1922	1928	26.5	57.0	13.0		
	1420 BOUL	45	1922.5	1928.5	10	15.0	4.0		
	1415 SGMR	4	1922.8	1928	13.6	26.2	8.1		
	15400 SGMR	20	1923.9	1937.5	19	32.0	6.0		
	7000 SAOP	23	1923.4	1928.7	18.3	46.1			
	7000 SAOP	22	1923.4		18.3	35.8			
	2700 PENN	3	1923	1927.9	8.5	85.9	42.9		
	606 SGMR	4	1923.7	1928	8.5	48.4	15.7		
	245 SGMR	48	1923	1927.2	8.3	630.0	252.0		
	960 PENN	1	1926.7	1927.7	3.3	9.9	4.1		
	410 SGMR	6	1926.5	1927.2	4.8	37.1	14.3		
	7000 SAOP	3	1928.1	1928.7	1.5	23.0	11.7		
	18 MCMA	41	1938	1941	5			3	
	7000 SAOP	40	1941.7		38 U	20.4			
	100 HIRA	45	2150.8	2151.7	1.5	120.0	40.0		
	2800 OTTA	20	2224	2225.5	11	2.0	1.0		
	2695 BOUL	3	2225	2225.5	3.5	3.0	1.0		
	2695 CRON	3	2252	2256	9	7.0	3.0		
25	1420 CRON	8	0057	0057.5	1	5.0	2.0		
	100 HIRA	45	0104	0104.7	1.5	110.0	50.0		
	1420 CRON	45	0222	0223	4	3.0	1.0		
	100 HIRA	27	0340	0412	105	30.0	10.0		
	2950 GORK	20	0415	0421.5	27				
	950 GORK	22	0416.5	0419	17.5	11.0	4.6		
	200 HIRA	45	0416	0422.3	14	130.0	15.0		
	100 HIRA	45	0417.2	0420.5	14	180.0	70.0		
	3750 TYKW	3	0418	0424.3	15	70.0	20.0		
	2695 CRON	3	0418	0424	15.5	74.0	26.0		
	2695 MANI	4	0418.9	0424.4	13.6	122.0	28.8		
	2695 ATHN	4	0418 U	0424.5	14 U	102.0	33.8U		
	2000 TYKW	3	0418	0424.4	15	72.0	18.0		
	606 MANI	22	0418.2	0421.6	10.3	9.5	2.5		
	200 GORK	6	0418.7	0422.5	9.2	150.0			
	4995 CRON	3	0419	0424.5	14.5	48.0	14.0		
	4995 MANI	4	0419.3	0424.4	19.3	60.0	26.6		
	1420 CRON	3	0419	0424.5	17.5	24.0	9.0		
	1415 MANI	4	0419.3	0424.3	11.5	19.4	4.9		
	1000 TYKW	20	0419	0424	12	7.0	3.0		
	650 GORK	22	0419.3	0420.5	6.7	3.3	2.0		
	9400 TYKW	3	0420	0424.3	10	19.0	9.0		
	9100 GORK	20	0420.9	0424.3	16.1	17.5	4.0		
	4995 ATHN	4	0420.6	0424.5	9 U	34.0	11.0U		
	1415 ATHN	4	0420.6	0424.4	11.1	14.9	4.9		
	8800 MANI	4	0421.2	0424.5	18.5	24.8	9.1		
	8800 ATHN	4	0422.2	0424.5	7	20.1	6.8		
	9400 TYKW	29	0430		90	8.0	4.0		
	3750 TYKW	29	0433		85	6.0	3.0		
	2000 TYKW	29	0433		80	4.0	2.0		
	100 GORK	44	0640 E		380 D		5.0		
	8800 ATHN	4	0705.9	0706.8	1.7	23.8	7.3		
	200 GORK	41	0717	0717.2	2.7	50.0			
	200 GORK		0717	0719.1		230.0D			
	2950 GORK	20	0718	0721	6.8	4.3	2.2		
	650 GORK	4	0719	0719.1	.7	43.0	14.5		
	1500 BERL	1	0732.5	0732.7	.5	2.4			
	100 GORK	6	0742.2	0742.6U	1	20.0D			
	100 GORK	6	0755.3	0755.9U	1.2	50.0D			

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25	100	HIRA	45	0755.5	0755.8	1	70.0	25.0		
	1420	CRON	45	0815	0819	5	5.0	2.0		
	2950	GORK	20	0817.5	0819.9	7.2	3.5	1.7		
	1415	MANI	1	0818.8	0819.1	.5	1.9	1.0		
	1415	ATHN	1	0818.3	0818.8	1.4	1.6	.5		
	606	MANI	8	0818.9	0819	.8	71.0	10.0		
	237	TRST	45	0818.8	0818.9	.3	890.0	180.0		
	234	POTS	45	0818.8	0818.9	.2	140.0	35.0		
	221	ABST	1	0818.2	0818.5	.5	46.0			
	210	IZMI	6	0818.8	0818.9	.6	360.0	280.0		
	113	POTS	45	0818.8	0819	.4	2100.0	400.0		
	100	HIRA	5	0818.9	0819	1	160.0	50.0		
	23	POTS	5	0818.9	0819	.8	7000.0	2500.0		
	950	GORK	1	0819	0819.1	.7	4.0	2.0		
	808	ONDR	45	0819	0819	1	65.0			
	536	ONDR	45	0819.5	0819.5	3	235.0			
	260	ONDR	45	0819	0819	1	60.0			
	29	UPIC	5	0819	0819.5	1				
	221	ABST	3	0855.5	0856	1.2	28.0	4.0		
	260	ONDR	45	0856.5	0857.5	1.5	75.0			
	237	TRST	41	0856.7	0857.3	1.2	500.0			
	234	POTS	40	0856.8	0857.2	.8	250.0	25.0		
	210	IZMI	6	0856.8	0856.9	1	480.0	280.0		
	200	GORK	41	0856.8	0856.8	1.4	230.0D			
	200	GORK		0856.8	0858		60.0			
	23	POTS	5	0856.8	0857.6	.6	3000.0	1000.0		
	100	GORK	6	0857.2	0857.5	.5	30.0	15.0		
	29	UPIC	45	0857	0857	1.5				
	200	GORK	6	0931.6	0931.7	.4	180.0	70.0		
	29	UPIC	45	0932	0932	6				
	100	GORK	6	0937	0937.1	.6	300.0	15.0		
	29	UPIC	5	1021	1021.5	1				
	23	POTS	5	1021.3	1021.4	.6	3000.0	1000.0		
	2695	CANR	3	1044.5	1046	2.5	4.0	1.0		
	2800	OTTA	20	1208	1210	140	3.8	1.9		
	8800	ATHN	4	1323.7	1324.5	7	60.8	15.2		
	7000	SAOP	40	1434.8		19.2	7.5			
	1500	BERL	2	1446	1446.6	1	2.7			
	18	MCMA	41	1512	1514	5			1	
	245	SGMR	6	1514.4	1514.5	.3	41.0	16.0		
	23	POTS	5	1514.5	1514.6	.5	8000.0	2500.0		
	2800	OTTA	45	1526	1527	19	4.0	1.4		
	2695	CANR	3	1537 U	1537.5U	3.5	5.0	2.0		
	2800	OTTA	21	1555	1630	100	3.8	1.9		
	1420	CANR	8	1657	1657.5	1	5.0	2.0		
	2695	SGMR	2	1659.9	1700.4	1.1U	7.0	2.8U		
	1415	SGMR	2	1659.9	1700.2	1.1U	3.7	1.5U		
	18	MCMA	6	1659	1601	4			2	
	2695	BOUL	8	1700	1700.5	1	6.0	2.0		
	2695	PENT	1	1700	1700.4	1	6.0	2.0		
	1420	BOUL	8	1700	1700.5	1	5.0	2.0		
	2695	CANR	8	1718	1718.5	1	9.0	4.0		
	18	MCMA	6	1803	1805	3			1	
	4995	BOUL	8	1958	1958.5	1.5	45.0	17.0		
	18	MCMA	42	2021	2027	7			2	
	2800	OTTA	22	2105	2105	35	2.0	1.0		
	18	MCMA	6	2205	2206	2			1	
	4995	BOUL	3	2304	2305	1.5	12.0	4.0		
26	1420	CRON	3	0219.5	0222	3	3.0	1.0		
	100	GORK	6	0533.8	0534	.9	30.0D			
	9750	IRKU	1	0600	0600.9	1.5	2.8	7.0		
	4995	MANI	20	0625.4	0637.3	18.3	16.7	2.8		
	8800	MANI	20	0631.4	0639.4	12.3	17.5	5.0		
	2695	CRON	3	0635	0637	4.5	5.0	2.0		
	2950	GORK	1	0636.9	0637.5	2.6	4.5	2.2		
	4995	MANI	1	0648.9	0650.8	3.2	4.2	1.3		
	2695	MANI	1	0648.9	0650.6	4.1	7.5	1.5		
	1415	MANI	1	0648.9	0650.5	4.6	2.9	1.0		
	8800	MANI	1	0649.4	0650.5	2.7	17.5	2.5		
	3000	BERL	45	0845.5	0846.1	2	6.5	1.5		
	2950	GORK	45	0845.9	0846.2	2.4	10.1			
	2950	GORK		0845.9	0846.8					
	1500	BERL	46	0845.8	0846.3	1.8	3.4	1.1		
	2695	CRON	3	0846.5	0847	1.5	6.0	2.0		
	1420	CRON	3	0846	0847.5	3	5.0	1.0		
	8800	SGMR	1	1301.5	1301.6	1.5	6.2	3.1		
	4995	SGMR	1	1301.5	1301.7	1.8	4.0	2.0		
	3000	BERL	4	1301	1301.7	2.1	9.5	3.5		
	2800	OTTA	1	1301	1301.5	1	9.0	4.5		
	2695	BOUL	3	1301.5	1302	1.5	9.0	3.0		
	2695	SGMR	1	1301.3	1301.6	5.2	8.2	3.8		
	2695	ATHN	1	1301	1301.7	3	8.5	2.8		
	1415	SGMR	1	1301.4	1301.5	1.7	1.3	.6		
	2695	CANR	8	1302	1303	2	11.0	4.0		
	536	ONDR	45	1320	1320.5	1.5	50.0			
	260	ONDR	45	1320	1320.5	1.5	15.0			
	18	MCMA	6	1327	1329	2			2	
	260	ONDR	45	1350	1350.5	1.5	15.0			
	2800	OTTA	20	1405	1430	85	1.8	0.9		

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26	2800	OTTA	20	1600	1635	155	1.4	0.9		
	18	MCMA	6	1749	1750	2			1	
	18	MCMA	6	1800	1801	2			1	
	2800	OTTA	21	1900	2005	135	14.8	7.4		
	2700	PENN	20	1918.6	1958.9	179	42.2	8.8		
	960	PENN	24	1924.1	2109.8		4.2			
	9400	HUAN	21	1927.1	2011.3	104.2	41.6	17.7		
	2695	BOUL	3	1930.5	1931.5	2	3.0	1.0		
	10700	PENN	20	1936	1958.9	63	34.3	15.4		
	2800	OTTA	45	1936	1944	11	5.0	2.3		
	2695	BOUL	45	1942.5	1944	2.5	5.0	2.0		
	960	PENN	1	1942	1943.6	3	6.7	0.9		
	1420	BOUL	3	1943	1944	3.5	2.0	1.0		
	2800	OTTA	45	1954	1958.8	7.5	14.6	3.6		
	2695	BOUL	3	1954.8	1955.5	3	7.0	3.0		
	2695	SGMR	46	1954.3	1955.2	7.2	8.2	3.3		
	2695	SGMR	46		1959		13.2			
	1420	BOUL	3	1954	1956	2.5	3.0	1.0		
	1415	SGMR	46	1954	1955.9	8.3	3.8	2.0		
	1415	SGMR	46		1959		8.0			
	606	SGMR	46	1954	1954.7	6.5	4.7	1.6		
	606	SGMR	46		1958.9		6.5			
	4995	SGMR	4	1957.9	1958.9	4.1	38.2	9.5		
	2695	BOUL	8	1957.5	1959	2	14.0	5.0		
	410	SGMR	6	1957.8	1958.7	4.7	22.6	5.7		
	245	SGMR	7	1957.5	1958.7	3.7	395.0	99.0		
	100	HIRA	45	1957.8	1958.2	1.5	70.0	30.0		
	9400	HUAN	1	1958.2	1958.7	1	27.6	11.3		
	8800	SGMR	3	1958.4	1958.8	.9	31.4	7.8		
	1420	BOUL	8	1958.5	1959	1.5	6.0	2.0		
	960	PENN	1	1958.4	1959	1.8	4.5	1.5		
	2695	SGMR	29	2001.5	2001.5	14.6	2.0	.5		
	100	HIRA	45	2001.5	2002.5	4.5	240.0	90.0		
	4995	SGMR	29	2002	2002	9.8	7.0	1.8		
	410	SGMR	6	2106.4	2107.1	1.6	1.6	.4		
	245	SGMR	6	2106.4	2106.6	1.5	58.9	14.7		
	208	VORO	6	2106	2107	1	74.0	36.0		
	200	HIRA	45	2106.5	2107	1	150.0	50.0		
	2800	OTTA	20	2125	2200	55	2.0	1.0		
	8800	MANI	1	2218	2218.8	2.1	7.2	2.4		
	4995	MANI	1	2218	2218.8	2.1	8.1	2.7		
	2695	MANI	1	2218.1	2218.7	1.8	5.8	2.3		
	1415	MANI	1	2218.1	2218.7	1.8	4.9	2.0		
	2695	PENT	20	2230	2305	60	3.0	1.5		
	410	SGMR	6	2302.5	2305.6	5.1	13.3	3.3		
	245	SGMR	7	2302.5	2302.6	8.6	315.0	79.0		
	200	HIRA	45	2302	2302	7	150.0	30.0		
	100	HIRA	45	2302.5	2302.8	5	180.0	40.0		
	4995	MANI	1	2303.2	2305.7	4	4.1	1.4		1 SPA
	2695	MANI	1	2303.2	2305.7	5.3	2.3	1.2		
	208	VORO	6	2303	2303	5	270.0	80.0		
	3750	TYKW	1	2304	2305.4	4	5.0	2.0		
	2695	BOUL	3	2305	2306	2	4.0	1.0		
27	9400	TYKW	1	0117.7	0118	.6	4.0	1.0		
	4995	MANI	1	0117.6	0118.1	1	5.4	2.7		
	3750	TYKW	1	0117.7	0118	.6	3.0	1.0		
	2695	PENT	1	0117.9	0118	1	1.0	0.5		
	2695	MANI	1	0117.5	0118.1	.9	3.5	1.2		
	1415	MANI	1	0117.7	0117.9	.8	2.0	1.0		
	1000	TYKW	1	0117.7	0117.9	.4	4.0	1.0		
	606	MANI	1	0117.7	0117.9	.8	2.5	1.0		
	100	HIRA	5	0117.6	0118	1.5	240.0	110.0		
	260	ONDR	44	0640	1205	510	50.0			
	221	ABST	41	0700	0756.8	195	6.0			
	221	ABST	3	0756	0756.8	1	38.0	4.0		
	204	KIEV	42	0830 E		400 D	39.0	12.0		
	200	GORK	44	0830 U		240 D		5.0		
	410	SGMR	44	0949 E	1207.2	825 D	107.0			
	245	SGMR	44	0949 E	1207.2	825 D	105.0			
	29	UPIC	45	0923.5	0923.5	.5				
	3000	BERL	4	1010.5	1013.2	19	15.0	4.5		
	4995	CANR	3	1011.5	1012.5	2.5	18.0	6.0		
	2830	ARCE	3	1011.7	1012.8	8				
	100	GORK	49	1011.3	1014.4	53.7	1000.0			
	100	GORK	48	1011.3	1012.7	5.8	30.0			
	100	GORK		1011.3	1014.4		1000.0			
	29	UPIC	45	1011		6				
	9500	BERL	1	1012	1012.8	9	7.4			
	9285	ARCE	20	1012.2	1013.3	9				
	9100	GORK	20	1012.4	1013	9	7.5	3.7		
	2950	GORK	3	1012	1012.7	14.1	12.6			
	1500	BERL	46	1012	1015.5	8	7.5	1.9		
	1420	CANR	45	1012	1016	7.5	7.0	2.0		
	950	GORK	2	1012.6	1014.4	4.6	5.0	2.5		
	808	ONDR	45	1012.5	1015	7	65.0			
	650	GORK	46	1012.6	1013.8	2	9.5			
	650	GORK		1012.6	1014.4		7.2			
	200	GORK	41	1012.6	1012.9	12.3	90.0			
	200	GORK		1012.6	1014.3		90.0			

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	200	GORK		1012.6	1019.3		100.0			
	200	GORK		1012.6	1023.7		90.0			
	113	POTS	45	1012.6	1012.9	2.2	700.0	90.0		
	23	POTS	45	1012.6	1013.3	4.3	50000.0	8000.0		
	2695	CANR	45	1013	1014	13	14.0	5.0		
	536	ONDR	45	1013	1013.5	7	40.0			
	210	IZMI	6	1014.9	1015	.6	120.0	70.0		
	2950	GORK	29	1016.7	1016.7	9.4	7.0	3.5		
	100	GORK	41	1017.1	1034.2	47.5	30.0	8.5		
	100	GORK	44	1158		62 D		5.0		
	29	UPIC	45	1159	1205.5	6.5				
	23	POTS	41	1159.1	1204.9	6.7	7000.0	230.0		
	2800	OTTA	20	1200	1417	270	5.0	2.7		
	100	GORK	41	1201	1201.2	12.7	30.0D			
	100	GORK		1201	1212.2		50.0D			
	237	TRST	42	1204.7	1207.2	3	350.0			
	234	POTS	41	1206.8	1207.2	6.2	100.0	1.0		
	237	TRST	42	1211.8	1213	1.3	390.0			
	200	GORK	6	1212.8	1213	.5	200.0			
	113	POTS	45	1212.9	1213.2	.6	200.0	30.0		
	29	UPIC	45	1213	1213.5	1				
	113	POTS	45	1340.7	1340.9	.5	140.0	20.0		
	29	UPIC	45	1340	1340	2				
	23	POTS	45	1340.6	1340.7	1	10000.0	2000.0		
	18	MCMA	42	1523	1530	8			1	
	18	MCMA	6	1554	1556	3			1	
	29	UPIC	45	1557	1557	1				
	18	MCMA	41	1654	1655	4			1	
	2800	OTTA	20	1700	1955	220	2.8	1.8		
	18	MCMA	6	1913	1914	2			1	
	2800	OTTA	20	2100	2135	80	1.4	0.7		
	208	VORO	42	2305	2315	14	50.0			
28	18	MCMA	41	0015	0016	4			1	
	200	GORK	44	0403 E		420 D		5.0		
	100	GORK	44	0450		250 D		10.0		
	260	ONDR	44	0630	1005.5	520	60.0			
	204	KIEV	42	0700 E		330	59.0	10.0		
	245	SGMR	44	0947 E	1112.5	829 D	31.5			
	100	GORK	44	1010		60 D		5.0		
	200	GORK	6	0443.1	0444.5	3.1	150.0			
	100	GORK	6	0443	0443.9	1.8	35.0	15.0		
	100	GORK	6	0453.9	0454.2	.7	70.0	25.0		
	1420	CRON	8	0522	0522.5	2	6.0	2.0		
	1000	TYKW	1	0522	0522.6	2	4.0	1.0		
	950	GORK	4	0522.2	0522.6	1.5	5.6	1.5		
	200	GORK	6	0522.3	0522.5	1	150.0			
	200	GORK	41	0536.4	0536.8	2.4	110.0			
	200	GORK		0536.4	0537.5		150.0			
	100	GORK	6	0537	0538.1	1.5	50.0	20.0		
	100	GORK	24	0545	0555.5	24	40.0	20.0		
	221	ABST	1	0725.2	0725.5	.5	17.0			
	221	ABST	3	0745.5	0748.2	1	34.0	4.0		
	100	GORK	41	0811.8	0813.8	13.1	45.0			
	100	GORK		0811.8	0818.8		50.0			
	29	UPIC	5	0828.5	0828.5	.5				
	100	GORK	6	0855.2	0857.7	3.7	30.0	10.0		
	100	GORK	41	0904	0904.5	6.5	15.0			
	100	GORK		0904	0907		20.0			
	100	GORK		0904	0908.9		10.0			
	1500	BERL	2	1110.5	1110.8	1	3.2			
	29	UPIC	45	1114	1115.5	3				
	2800	OTTA	20	1330	1530	165	3.6	1.8		
	9400	HUAN	22	1401.4	1410.8	22.5	21.4	4.2		
	10700	PENN	3	1404.6	1405.1	5.4	13.9	1.7		
	10700	PENN	3	1410.4	1411	4.8	16.2	2.3		
	9500	BERL	3	1410	1410.8	5	16.0	2.9		
	3000	BERL	20	1410.5	1411.3	11.5	2.1	1.0		
	18	MCMA	6	1523	1525	3			2	
	10700	PENN	1	1609.2	1610.7	8.6	9.5	2.0		
	2700	PENN	24	1610.6	1923.8		15.0			
	2800	OTTA	21	1715	1745	105	4.6	2.0		
	2700	PENN	20	1739.2	1743.1	47.5	10.7	4.5		
	8800	SGMR	20	1741.7	1756.5	20.8	6.7	3.0		
	4995	SGMR	20	1741.6	1743.2	13	3.3	1.5		
	2800	OTTA	1	1741.8	1743	2	3.0	1.5		
	1415	SGMR	1	1741.7	1743.5	7.8	.6	.3		
	2695	BOUL	3	1742	1743.5	2	4.0	1.0		
	2695	SGMR	2	1742.1	1743.3	5.8	2.4	1.0		
	2695	CANR	3	1743.5	1744.5	1.5	4.0	1.0		
	2695	SGMR	20	1757.7	1804.3	17.7	2.4	1.2		
	4995	SGMR	20	1802.4	1804.9	11.8	4.4	2.2		
	8800	SGMR	20	1804	1806.5	14.5	5.6	2.7		
	1415	SGMR	20	1804.1	1804.7	10.9	1.3	.7		
	2695	SGMR	1	1858	1859.8	2.5	1.6	.8		
	15400	SGMR	4	1859.3	1859.7	3.2	44.9	11.2		
	10700	PENN	3	1859.5	1859.9	1.5	28.6	10.2		
	9400	HUAN	1	1859.5	1859.7	1.9	19.7	7.2		
	8800	SGMR	3	1859.4	1859.7	3.1	19.0	4.8		
	4995	SGMR	1	1859.6	1859.7	.8	.7	.3		

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APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
28	4995	SGMR	20	1907.3	1910.9	25.5	2.2	1.1		
	2800	OTTA	20	1923	1928	10	1.6	0.8		
	2695	SGMR	1	1923.4	1923.2	9.9	2.6	1.3		
	410	SGMR	6	1923.6	1928	6.5	5.1	2.0		
	10700	PENN	20	1924.8	1932.3	20.4	9.5	4.8		
	9400	HUAN	20	1924.9	1931.5	11.1	9.9	3.9		
	1415	SGMR	2	1924.8	1928.2	6.8	1.9	.9		
	8800	SGMR	20	1925	1928.2	12	8.4	4.2		
	1420	BOUL	45	1926	1928	5	2.0	1.0		
	606	SGMR	2	1926.3	1928.2	5.2	3.5	1.6		
	18	MCMA	41	1926	1927	4			1	
	10700	PENN	3	2010.4	2012.8	4.4	152.0	43.6		
	4995	SGMR	3	2010.7	2012.9	5.3	10.7	2.7		
	15400	SGMR	4	2011.7	2012.4	4	156.0	39.0		
	9400	HUAN	3	2011.6	2012.8	3	121.7	45.4		
	8800	SGMR	4	2011.1	2012.9	4.9	115.0	28.8		
	2695	SGMR	2	2011.2	2015.8	7.3	2.0	1.0		
	4995	BOUL	3	2012	2012.5	1	12.0	5.0		
	10700	PENN	29	2014.8	2014.8	125	19.1	5.1		
	9400	HUAN	29	2014.6	2014.6	12.7	11.5	5.5		
	8800	SGMR	30	2016	2016	20.5	11.2	5.5		
	4995	SGMR	30	2016	2016	200 D	7.0	3.5		
	2800	OTTA	1	2021.5	2022.1	1	1.0	0.5		
	2695	BOUL	3	2022.5	2023	1	3.0	1.0		
	2695	SGMR	20	2023	2030.7	17.2	6.6	3.3		
	4995	BOUL	3	2029.5	2030	1	10.0	4.0		
	8800	SGMR	1	2030.2	2030.5	.8	3.9	1.9		
	4995	SGMR	2	2030	2030.6	2.7	7.4	3.7		
	2800	OTTA	1	2030	2030.5	1	1.6	0.8		
	2695	BOUL	3	2030.5	2031	1	2.0	1.0		
	2800	OTTA	21	2035	2132	130	3.6	1.8		
	100	HIRA	27	2126	2150	55	20.0	10.0		
	1420	BOUL	45	2128.5	2134.5	8.5	7.0	2.0		
	1415	SGMR	22	2128.3	2134.1	16.7	9.7	4.9		
	208	VORO	24	2128	2141	30	16.0	12.0		
	2695	BOUL	45	2129.5	2131	6	7.0	2.0		
	606	SGMR	40	2129.2	2130.3	15.3	17.1	1.7		
	410	SGMR	6	2129	2132.7	15.8	7.4	1.9		
	245	SGMR	6	2129.2	2131.3	13.1	20.1	5.0		
	2800	OTTA	1	2130.2	2131	1.5	3.0	1.5		
	2800	OTTA	1	2133.7	2134	1.5	1.4	0.7		
	1415	SGMR	1	2146.5	2147.2	8.1	1.7	.8		
	606	SGMR	4	2146.6	2146.7	7.9	21.2	2.0		
	410	SGMR	6	2146.7	2147.1	8	3.7	1.0		
	100	HIRA	45	2146.5	2147	1	75.0	40.0		
	9400	HUAN	1	2147.6	2148.1	1.6	16.4	8.5		
	100	HIRA	45	2151.5	2152.3	1	70.0	45.0		
29	2000	TYKW	29	0004		12	4.0	2.0		
	9400	TYKW	20	0100	0150	100	6.0	3.0		
	3750	TYKW	20	0100	0120	155	4.0	2.0U		
	2000	TYKW	45	0100	0219	150	5.0	3.0		
	1000	TYKW	20	0100	0140	100	4.0	2.0		
	2695	PENT	25	0105		40	3.0			
	100	HIRA	27	0120	0150	85	65.0	20.0		
	4995	MANI	4	0128.8	0135.5	14.5	29.0	10.6		
	2695	MANI	22	0128.8	0135.4	14.9	15.2	4.8		
	1415	MANI	22	0128.8	0134.3	12.8	5.3	2.1		
	8800	MANI	4	0129.1	0134	13 U	25.2	3.9U		
	606	MANI	22	0130	0135.7	10.2	2.8	.6		
	4995	CRON	45	0131	0134	7	20.0	8.0		
	4995	CRON	45	0131	0135	7	20.0	8.0		
	3750	TYKW	45	0131	0135.3	20	19.0	4.0		
	2695	CRON	3	0131.5	0135	7	12.0	5.0		
	9400	TYKW	45	0132	0134	18	31.0	9.0		
	2000	TYKW	45	0132	0135	16	5.0	2.0		
	1420	CRON	3	0133.5	0135	3.5	3.0	1.0		
	1000	TYKW	1	0133.7	0134.1	.8	3.0	1.0		
	2695	PENT	2	0134	0135.5	5	6.2	3.4		
	9400	TYKW	20	0340	0419	90	14.0	4.0		
	3750	TYKW	20	0340	0425	110	8.0	3.0		
	9400	TYKW	1	0345	0350	10	4.0	2.0		
	3750	TYKW	20	0345	0350.5	15	4.0	1.0		
	2000	TYKW	20	0345	0430	90	5.0	2.0		
	1420	CRON	45	0346	0347.5	6	5.0	2.0		
	1000	TYKW	1	0347	0347.4	1	3.0	1.0		
	200	GORK	44	0400		420 D		5.0		
	100	GORK	44	0409		180 D		5.0		
	100	GORK	44	0700 E		240		20.0		
	260	ONDR	45	0856	1053.5	282	90.0			
	234	POTS	45	0857 E	1053.5D	315	120.0	30.0		
	29	UPIC	44	0900	1020.5	235				
	113	POTS	45	0909 E	1113 D	312	200.0	50.0		
	204	KIEV	44	0925	1354	260	58.0	16.0		
	210	IZMI	24	0938	1054	142	100.0	35.0		
	410	SGMR	44	0946 E	1022.3	831 D	15.0			
	245	SGMR	44	0946 E	1137.7	831 D	38.0			
	208	VORO	44	2257	0005	123	21.0	15.0		
	4995	MANI	1	0415.5	0416.4	2.2	2.6	1.3		
	2695	MANI	1	0415.5	0416.4	1.9	9.5	1.9		

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APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
29	1420 CRON	45	0415.5	0417	2	6.0	2.0		
	1415 MANI	2	0415.1	0416.5	2.3	5.3	1.1		
	3750 TYKW	1	0416	0416.2	1	3.0	1.0		
	2000 TYKW	1	0416	0416.2	1	12.0	3.0		
	8800 ATHN	4	0621.9	0629.5	9.3	299.0	58.3		
	9750 IRKU	3	0622	0629	20	36.5	170.0		
	9400 TYKW	3	0622	0629.5	21	275.0	60.0		
	4995 ATHN	4	0622	0629.5	9.1	76.8	19.2		
	3750 TYKW	3	0622	0629.5	17	42.0	11.0		
	9400 SLOU	4	0623	0629.5	17	379.0			
	10500 BERN	3	0624.5	0629.4	40	274.0			
	8800 MANI	4	0624.4	0629.5	21.5	255.0	68.0		
	4995 MANI	4	0624.5	0629.6	14.1	91.0	29.5		
	19000 SLOU	4	0626	0629.5	6	294.0			
	4995 CRON	8	0626.5	0629.5	7	55.0	20.0		
	2695 CRON	45	0626	0629	8.5	61.0	11.0		
	2695 MANI	40	0626.8	0629.4	17.2	80.0	18.5		
	2950 GORK	45	0627.4	0623.7	126 D	31.0			
	2950 GORK		0627.4	0629.4		45 .0			
	2695 ATHN	4	0627.1	0629.2	2.6	67.1	16.4		
	1415 MANI	22	0627.4	0629.9	13.7	9.7	3.9		
	1415 ATHN	2	0627.1	0629.8	9.3	6.7	1.7		
	2000 TYKW	1	0628	0629.5	8	11.0	3.0		
	1420 CRON	21	0628	0630	11	7.0	2.0		
	2695 ATHN	29	0629.7	0629.7	21.3	11.0	4.1		
	8800 ATHN	29	0631.2	0631.2	26.5	56.4	18.8		
	4995 ATHN	29	0631.1	0631.1	26 U	24.2	9.1U		
	2950 GORK	29	0632.4	0632.4	121	96.0			
	3750 TYKW	29	0639		80 D	8.0	5.0U		
	9400 TYKW	29	0643		76 D	25.0	18.0U		
	1420 CRON	45	0654	0655	3	5.0	2.0		
	2695 CANR	3	0724.5	0725	1.5	7.0	2.0		
	9285 ARCE	1	0845.1	0845.8	4.8				
	2830 ARCE	2	0845.1	0845.8	2				
	9285 ARCE	22	0900	0913.7	16				
	2830 ARCE	20	0900	0904.8	16				
	9285 ARCE	21	0932.6	1009.6	170				
	2830 ARCE	23	0933.7	1031.6	185 U				
	536 ONDR	45	0950	1051	130	80.0			
	550 KIEV	20	0955	1052.2	92	75.0			
	3000 BERL	21	0956	1135	102	7.7			
	950 GORK	23	0956.6	1054 U	74 D	10.5			
	650 GORK	23	0956.4	1052.6	67.8	16.0			
	9500 BERL	21	1000	1136.7	140	25.0			
	8800 ATHN	4	1000.5	1005.4	13.9	277.0	60.2		
	4995 CANR	45	1000	1005	87.5	59.0	19.0		
	510 POTS	45	1000 E	1058 D	216	35.0	10.0		
	10500 BERN	46	1001.3	1005.5	11	190.0			
	9500 BERL	4	1001.5	1005.3	12	171.0			
	9400 SLOU	4	1001	1005.5	12	220.0			
	3000 BERL	4	1001.5	1005.5	8	65.0			
	1500 BERL	21	1001	1048	112	5.0			
	15400 SGMR	4	1002	1005.6	8.5	177.0	44.0		
	9285 ARCE	4	1002.3	1005.6	5				
	8800 SGMR	46	1002.2	1003	8.4	36.5	47.0		
	8800 SGMR	46		1005.5		187.0			
	4995 SGMR	46	1002.3	1003	6	20.6	18.0		
	4995 SGMR	46		1005.7		89.0			
	4995 ATHN	4	1002. U	1005.5	5 U	61.6	20.2U		
	2695 SGMR	46	1002.2	1003.2	10.2	12.3	17.6		
	2695 SGMR	46		1005.7		88.1			
	2695 ATHN	4	1002.8	1005.6	6.9	61.7	20.6		
	1500 BERL	46	1002	1005.8	9	32.0			
	1420 CANR	45	1002.5	1015.5	86.5	25.0	4.0		
	1415 SGMR	46	1002.5	1002.7	8	10.7	5.6		
	1415 SGMR	46		1005.8		28.1			
	1415 ATHN	4	1002.5	1005.6	9.5	28.0	9.5		
	606 SGMR	40	1002.5	1005.6	10.1	5.9	2.0		
	9100 GORK	21	1003.5	1055.3	70	32.0	28.0		
	2695 CANR	45	1003	1018.5	70	194.0	18.0		
	9100 GORK	3	1004.8	1005.8	2.3	133.0			
	2950 GORK	20	1004.8		66 D				
	2830 ARCE	3	1004.9	1005.6	3				
	808 ONDR	45	1004.5	1025	84	75.0			
	37000 SLOU	4	1005	1005.5	1	60.0			
	19000 SLOU	4	1005 U	1005.5	5 U	96.0			
	2950 GORK	3	1005.4	1005	2.9	72.0	19.2		
	950 GORK	3	1005.5	1006	1.5	13.0	6.5		
	650 GORK	4	1005.3	1005.5	1.5	15.8			
	200 GORK	6	1005.3	1005.7	.6	120.0	40.0		
	650 GORK	4	1009.9	1010.5	1.7	9.0			
	23 POTS	45	1009 E	1128 D	183	200.0	40.0		
	1500 BERL	40	1010.5	1018.4	25	12.0			
	1415 ATHN	46	1012	1018	23.4	8.4	2.8		
	606 SGMR	40	1013.6	1025.2	18.8	11.2	4.0		
	15400 SGMR	46	1016.3	1018.2	20.4	125.0	25.0		
	15400 SGMR	46		1021.4		61.4			
	10500 BERN	46	1016.3	1018.2	12	155.0			
	9500 BERL	46	1016	1018.2	22	142.0			
	9400 SLOU	46	1016	1018	23	181.0			

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29	8800	SGMR	46	1016.5	1018.3	20.1	142.0	28.0		
	8800	SGMR	46		1021.4		79.8			
	8800	ATHN	46	1016.4	1018.2	21.1	241.0	56.4		
	4995	SGMR	46	1016.6	1018.9	20.7	71.9	14.5		
	4995	SGMR	46		1021.5		51.3			
	4995	ATHN	46	1016.8	1018.2	18 U	68.7	23.2U		
	3000	BERL	46	1016.5	1018.3	32	117.0			
	2695	ATHN	46	1016.8	1018.2	17.5	169.0	56.2		
	1415	SGMR	40	1016.5	1018.3	20.3	7.5	3.0		
	29	UPIC	45	1016	1020.5	17				
	19000	SLOU	46	1017	1018.3	10	48.0			
	9285	ARCE	45	1017.2	1018.5	12.5				
	9285	ARCE		1017.2	1018.5	3.7				
	9285	ARCE		1020.9	1021.5	3.2				
	9285	ARCE		1024.1	1025	5.6				
	9100	GORK	45	1017.5	1018.6	11.2	113.0			
	9100	GORK		1017.5	1021.8		63.0			
	9100	GORK		1017.5	1025.2		40.0			
	2950	GORK	45	1017.5	1018	7	37.0			
	2950	GORK		1017.5	1018.5		110.0			
	2830	ARCE	46	1017	1018.2	10.3				
	2830	ARCE		1017	1018.2	4				
	2830	ARCE		1021	1021.5	6.3				
	2695	SGMR	46	1017.1	1018.3	19.8	154.0	15.0		
	2695	SGMR	46		1021.6		21.8			
	950	GORK	3	1018	1018.5	1.5	10.0	5.0		
	650	GORK	4	1018.2	1019	2	6.0			
	950	GORK	1	1021.2	1021.5	1.2	7.0	3.5		
	10500	BERN	3	1031.2	1031.9	4	32.0			
	9285	ARCE	3	1031.5	1032	4				
	9100	GORK	3	1031.6	1032.3	2.6	22.0			
	2950	GORK	1	1031.6	1032.2	2.8	5.2	2.6		
	606	SGMR	22	1034.5	1052.6	52.8	36.6	18.0		
	410	SGMR	6	1038.5	1059.2	49.5	76.1	19.0		
	245	SGMR	6	1038.5	1053.6	49.5	92.8	20.0		
	2695	SGMR	22	1042.9	1055.4	39.2	50.0	25.0		
	1415	SGMR	22	1042.7	1055	50.8	18.4	9.0		
	4995	SGMR	22	1043.7	1055	38.4	63.7	31.0		
	10700	PENN	3	1046	1054.4		63.3			
	2700	PENN	3	1046	1054.8		35.2			
	8800	ATHN	22	1047.1	1054.5	33	88.4	30.1		
	4995	ATHN	22	1047 U	1054.7	27 U	54.5	14.1U		
	1415	ATHN	22	1047	1055.1	35.6	15.7	5.0		
	15400	SGMR	20	1049.5	1054.3	30.5	47.0	23.0		
	8800	SGMR	22	1049	1054.6	33	74.8	37.0		
	1500	BERL	46	1049.5	1055	39	20.0			
	9500	BERL	4	1050	1054.2	24	90.0			
	3000	BERL	4	1050.5	1055	30	62.0			
	2830	ARCE	3	1050.2	1055	7.5				
	2800	OTTA	46	1050	1055	34	58.0	20.0		
	2695	ATHN	22	1050.2	1054.8	29.8	52.6	17.8		
	650	GORK	46	1050.8	1052.9	6.2	15.8			
	650	GORK		1050.8	1054		15.1			
	10500	BERN	3	1051	1054.6	12	62.0			
	9400	SLOU	4	1051	1055	14	75.0			
	9285	ARCE	3	1051	1054.9	6.6				
	19000	SLOU	4	1052.5	1054	5	61.0			
	2950	GORK	3	1052.6	1055.2	7.5	28.0	12.0		
	960	PENN	1	1052.3	1053.8	8	10.0	2.0		
	9100	GORK	3	1053.3	1054.8	3.9	40.0			
	950	GORK	1	1053.3	1054	2.4	6.7	3.8		
	9285	ARCE	29	1057.6		32				
	2830	ARCE	29	1057.7		30				
	650	GORK	2	1057.9	1058.5	1.9	5.0			
	2800	OTTA	30	1124		305	7.8	3.9		
	536	ONDR	45	1234	1236	9	45.0			
	7000	SAOP	22	1328.8		20.4	3.8			
	536	ONDR	45	1330.5	1332	4.5	90.0			
	2800	OTTA	20	1540	1545	50	3.2	1.6		
	2695	BOUL	21	1541.5	1546	24.5	6.0	2.0		
	2695	CANR	3	1544	1546.5	8.5	4.0	1.0		
	18	MCMA	6	1619	1620	2			1	
	7000	SAOP	40	1621.2		80.6	7.6			
	9400	HUAN	20	1626.7	1628.9	45	9.9	3.6		
	10700	PENN	20	1627.3	1629.1	15.5	10.0	5.0		
	2800	OTTA	21	1637	1755	225	2.8	1.6		
	2695	PENT	1	1648.5	1649	1	1.2	0.6		
	1415	SGMR	1	1724.9	1725	1.2	4.2	1.4		
	606	SGMR	2	1724.7	1725.8	3.4	9.9	2.6		
	410	SGMR	6	1724.7	1727.1	3.9	39.0	9.6		
	1420	BOUL	45	1725	1725.5	1	5.0	2.0		
	2700	PENN	20	1835.9	1842.9	45.2	18.3	5.5		
	9400	HUAN	21	1836.3	1849.5	62.8	13.2	4.2		
	10700	PENN	3	1838.9	1843	16.9	25.5	9.3		
	1415	SGMR	1	1838.4	1839.5	2.9	2.1	1.0		
	8800	SGMR	4	1839	1842.6	9.4	34.1	13.8		
	4995	SGMR	3	1839.2	1844.2	9.7	16.7	6.8		
	2800	OTTA	45	1839	1844.3	11	8.2	5.2		
	2695	BOUL	8	1839	1840	2	7.0	3.0		
	2695	SGMR	1	1839	1842.6	11.8	9.6	4.4		

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29	606	SGMR	1	1839.2	1839.3	.9	2.3	1.1		
	9400	HUAN	3	1840.5	1842.6	5.7	32.9	12.7		
	4995	BOUL	45	1840.5	1844	17.5	25.0	7.0		
	15400	SGMR	3	1842.4	1842.5	5.4	15.4	6.2		
	2695	BOUL	45	1842	1843.5	22.5	8.0	2.0		
	2695	BOUL	45	1842	1844	22.5	8.0	2.0		
	2800	OTTA	29	1850		50	2.0	1.0		
	4995	BOUL	47	2052.5	2307	99	5289.0	1042.0		
	2695	BOUL	47	2052.5	2121.5	131	2551.0	248.0		
	9400	HUAN	47	2053.2	2102.9	39	8269.3	2342.9		
	10700	PENN	47	2054.2			6900.0D			
	2800	OTTA	47	2054	2120	96	1760.0	715.0		
	2700	PENN	47	2054.4			2000.0D			
	15400	SGMR	47	2055.5	2102.9	82.5U	24068.0	3000.0		
	15400	SGMR	47		2119.5		2646.0			
	8800	SGMR	47	2055.7	2105.6	64.3U	11897.0	900.0		
	8800	SGMR	47		2119.9		4823.0			
	1415	SGMR	47	2055.4	2101.1	161.6U	3530.01			
	1415	SGMR	47		2214.2		165000.0			
	1420	BOUL	47	2055	2214	166	11816.0D	6840.0D		OFF SCALE
	960	PENN	47	2055.8			520.0D			
	35000	SGMR	47	2056.4	2102.9	54.6U	39081.0	5000.0		
	35000	SGMR	47		2119.5		2113.0			
	4995	SGMR	47	2056.6	2106.3	63.4U	1491.0	200.0		
	4995	SGMR	47		2120.2		1102.0			
	2695	SGMR	47	2056.7	2059.8	63.3U	1215.0	120.0		
	606	SGMR	47	2056	2102.1	161 U	1960.0	6500.0		
	606	SGMR	47		2215.4		65000.0D			
	500	HIRA	48	2056	2102.5	259	2700.0	660.0		
	500	HIRA		2056	2145.8		4600.0			
	500	HIRA		2056	2158.4		7400.0			
	500	HIRA		2056	2210		10000.0			
	410	SGMR	49	2056.8	2215.4	160.2U	52000.0	5200.0		
	245	SGMR	49	2057.3	2215.6	159.7U	16700.0	1750.0		
	245	BOUL	49	2059		139			3	
	200	HIRA	48	2059		130	330.0D	200.0D		
	208	VORO	49	2100	2215	117	460.0	210.0		
	100	HIRA	48	2100	2102 U	103	1000.0D	110.0D		
	606	MANI	47	2138.7E	2216.9U	206.7D	62000.01	7000.0D		SUNRISE
	1415	MANI	47	2140.5E	2214.1	59.6D	56000.01	5000.0D		SUNRISE
	2695	MANI	47	2141.6E	2212.6	57.5D	1630.0	440.0D		SUNRISE
	8800	MANI	40	2142 E		82.2D	---.-	---.-		SUNRISE
	4995	MANI	40	2142 E		82.2D	---.-	---.-		SUNRISE
	9400	TYKW	3	2145 E	2147	55 D	265.0	65.0U		
	3750	TYKW	45	2145 E	2146.9	55 D	270.0	50.0U		
	2000	TYKW	47	2145 E	2213.8	55 D	9700.0	840.0U		
	1000	TYKW	47	2150 E	2200	42 D	31000.0	1450.0D		
	9400	HUAN	30	2132.2	2132.2	46.1	665.8	237.0		
	2800	OTTA	30	2230		165	15.2	7.0		
	9400	TYKW	29	2240		70	24.0	12.0		
	3750	TYKW	29	2240		70	14.0	7.0		
	2000	TYKW	29	2240		70	30.0	15.0		
	2695	MANI	23	2241.2	2248	43.2	23.1	1.8		
	1415	MANI	22	2242.1	2249.2	43.6	29.3	3.0		
	4995	MANI	22	2244.8	2254.6	17.6	12.7	2.5		
	2800	OTTA	46	2246	2247	5.5	17.0	4.2		
	18	MCMA	6	2252	2254	2			1	
	4995	BOUL	3	2253.5	2254.5	2	17.0	6.0		
	3750	TYKW	45	2253.5	2254.3	4	105.0	15.0		
	2800	OTTA	4	2253.5	2254.3	2.5	92.0	23.0		
	9400	TYKW	1	2254	2254.5	1	4.0	2.0		
	2695	MANI	40	2254	2254.3	1.3	240.0	35.6		
	1420	BOUL	47	2349	2355	23	3214.0	287.0		
	9400	TYKW	20	2350	2355	30	13.0	6.0		
	1415	MANI	40	2350.2	2355.8	13	6000.0	1200.0		
	2800	OTTA	4	2351.8	2355	15	71.0	20.0		
	2695	BOUL	45	2351.5	2345.5	19.5	76.0	32.0		
	2695	BOUL	45	2351.5	2355.5	19.5	76.0	32.0		
	2695	CRON	45	2351	2354	19.5	64.0	22.0		
	2695	MANI	40	2351.2	2354	23.6	85.0	17.8		
	2000	TYKW	45	2351.5	2354.8	12.5	205.0	50.0		
	1000	TYKW	47	2351	2355.6	7	16700.0	2500.0		
	4995	MANI	4	2352	2356.8	23.5	16.5	5.1		
	3750	TYKW	45	2352	2357	28	15.0	3.0		
	4995	CRON	3	2353	2356	10.5	12.0	4.0		
	4995	BOUL	3	2353	2355.5	8.5	22.0	7.0		
	1420	CRON	47	2359	2356.5	26.5	3023.0	230.0		
30	2695	BOUL	3	0049	0049.5	2	5.0	2.0		
	1420	BOUL	3	0049	0049.5	2	2.0	1.0		
	1420	CRON	3	0109.5	0111.5	3.5	3.0	1.0		
	606	MANI	40	0115.2	0322.4	248.3	854.0	175.0		
	500	HIRA	29	0115	0322.5	205	120.0	20.0		
	2695	MANI	22	0120.2	0149.7	42	8.9	4.5		
	1415	MANI	23	0122.7	0127.3	48.8	26.3	8.1		
	2000	TYKW	45	0123	0124.1	8	17.0	8.0		
	1420	CRON	45	0123	0127.5	17.5	26.0	6.0		
	1000	TYKW	3	0125	0127.2	5	26.0	3.0		
	100	HIRA	45	0128	0128.5	1	90.0	35.0		
	100	HIRA	45	0129.5	0129.8	.7	390.0	110.0		

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30	2000 TYKW	45	0132	0136.4	6	7.0	2.0		
	100 HIRA	45	0132	0132.9	2	420.0	80.0		
	1000 TYKW	1	0135	0136.7	3	4.0	2.0		
	100 HIRA	45	0135	0136	1.5	170.0	50.0		
	100 HIRA	45	0138.4	0139.8	2.5	600.0	100.0		
	1420 CRON	47	0140.5	0150.5	19	1842.0	141.0		
	2000 TYKW	45	0141	0150	14	83.0	20.0		
	1000 TYKW	47	0143	0149.8	12	1600.0	130.0		
	2695 CRON	3	0147.5	0149.5	3.5	7.0	3.0		
	1415 MANI	40	0148.7	0149.7	4.2	1500.0	930.0		
	1420 CRON	3	0159.5	0200	5	2.0	1.0		
	1420 CRON	45	0212.5	0223	21.5	14.0	4.0		
	2000 TYKW	45	0213	0227.9	21	58.0	14.0		
	1415 MANI	40	0216.8	0326.6	99.5	2900.0	154.0		
	2695 MANI	40	0217.8	0321.3	97.9	125.0	26.7		
	1000 TYKW	45	0217.5	0218.9	20	6.0	2.0		
	4995 MANI	22	0222.2	0328.8	77	24.1	10.2		
	2695 CRON	45	0222	0228	12.5	53.0	17.0		
	2000 TYKW	45	0236	0321.3	90	285.0	70.0		
	2695 CRON	8	0241	0241.5	1	18.0	5.0		
	1000 TYKW	47	0243.5	0326.5	57	6500.0	520.0		
	1420 CRON	47	0246.5	0328	81.5	2385.0	73.0		
	2695 CRON	45	0247.5	0322.5	71	104.0	25.0		
	3750 TYKW	20	0300	0330	60	6.0	3.0		
	9400 TYKW	20	0310	0330	50	6.0	3.0		
	650 GORK	46	0355 E	0359.5	110	105.0			
	650 GORK		0355 E	0409		170.0			
	650 GORK		0355 E	0415		203.0			
	100 GORK	44	0400		300		5.0		
	260 ONDR	41	0640	1013	410	35.0			
	245 SGMR	44	0944 E	1712.7	834 D	30.6			
	950 GORK	46	0403	0407.1	16	67.0			
	950 GORK		0403	0408.6		89.0			
	1000 TYKW	3	0406	0408	4	27.0	8.0		
	1000 TYKW	45	0414	0416.8	5	11.0	3.0		
	950 GORK	46	0424.5	0425.8	45.8	34.0			
	950 GORK		0424.5	0431.4		42.0			
	950 GORK		0424.5	0435.3		65.0			
	1000 TYKW	1	0425	0425.4	1	3.0	1.0		
	1000 TYKW	45	0433.5	0435	13	12.0	3.0		
	650 GORK	29	0439	0439	69.5	49.0	24.0		
	950 GORK	40	0454 U	0801.9	15.3	88.0			
	2000 TYKW	45	0510	0524.1	35	8.0	2.0		
	200 HIRA	45	0512	0513.4	4.3	170.0	20.0		
	100 HIRA	45	0512	0513	4.5	320.0	90.0		
	3750 TYKW	20	0513	0520	30	2.0	1.0		
	2695 CRON	45	0549	0556	70.5	32.0	7.0		
	1420 CRON	45	0549	0602.5	60.5	35.0	6.0		
	1415 ATHN	46	0549.9	0554.9	72	37.8	14.8		
	3750 TYKW	45	0550	0602.5	120	23.0	8.0		
	2950 GORK	45	0550	0555.7	20.2	37.0	15.5		
	2950 GORK		0550	0557.8		34.0			
	2950 GORK		0550	0602.9		30.0			
	2000 TYKW	45	0550	0555.4	90	40.0	8.0		
	1415 MANI	4	0550.8	0554.9	22.6	38.4	10.1		
	2695 MANI	4	0551.2	0554.9	21.9	34.7	8.9		
	2695 ATHN	46	0551.1	0555.1	75.8	37.8	15.4		
	950 GORK	46	0551.9	0557.6	65.5	34.0			
	950 GORK		0551.9	0604.2		39.0			
	950 GORK		0551.9	0607.5		35.0			
	606 MANI	40	0551	0602.8	22.1	42.7	8.6		
	4995 ATHN	20	0552.1	0602.9	67.3	20.6	8.2		
	1000 TYKW	45	0552	0557	90	42.0	6.0		
	650 GORK	46	0552.8	0555	52.3	27.0			
	650 GORK		0552.8	0600.4		31.0			
	650 GORK		0552.8	0602.9		34.0			
	9400 TYKW	3	0553	0605	75	27.0	10.0		
	8800 MANI	4	0553	0604.9	25.4	40.4	13.4		
	8800 ATHN	20	0553	0602.9	60.5	27.9	11.2		
	4995 CRON	45	0553.5	0602.5	63.5	14.0	4.0		
	4995 MANI	4	0553	0604.8	25.4	25.4	12.7		
	200 GORK	41	0553.8	0555.6	5.4	150.0			
	200 GORK		0553.8	0559		150.0			
	100 GORK	41	0553.7	0554.5	2.3	140.0			
	100 GORK		0553.7	0555.3		180.0D			
	200 HIRA	45	0554.5	0555.5	9	150.0	10.0		
	100 HIRA	45	0554.5	0555.5	10.5	500.0	60.0		
	29 UPIC	45	0554	0556	8				
	9100 GORK	20	0556.8	0606.6	17	10.0	5.5		
	650 GORK	29	0609	0609	36	8.0	4.0		
	950 GORK	20	0616.6	0616.6	39.6	5.7			
	200 HIRA	45	0640.5	0641.5	2	150.0	70.0		
	100 HIRA	45	0641	0641.4	2	400.0	100.0		
	237 TRST	41	1012.4	1012.7	.9	120.0			
	221 ABST	1	1012.2	1012.5	.5	15.0			
	2695 CANR	8	1046	1046.5	2	4.0	1.0		
	2800 OTTA	21	1250	1400	330	3.0	1.8		
	2695 BOUL	45	1359.5	1402.5	6	6.0	2.0		
	2695 CANR	45	1400	1402	4	4.0	1.0		
	3000 BERL	1	1401	1402.2	2.2	3.0			

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30	2800	OTTA	1	1401	1402	2	2.6	1.3		
	1500	BERL	1	1401.8	1402.4	1.4	.9			
	260	ONDR	45	1402	1431.5	35	50.0			
	9400	HUAN	20	1612.8	1624.4	34	11.9	2.8		
	2695	BOUL	45	1652.5	1655	8	10.0	3.0		
	7000	SAOP	42	1721	1728.6	61.8	38.1			
	7000	SAOP	2	1721	1721.4	4.8	7.5	3.7		
	7000	SAOP	4	1725.8	1728.6	4.6	38.1	16.7		
	9400	HUAN	45	1726.1	1728.4	17.7	71.6	18.1		
	4995	CANR	3	1726.5	1728	3.5	6.0	2.0		
	19000	SLOU	45	1727 U	1728.8	2 U	121.0			
	15400	SGMR	46	1727.5	1728.5	12.5	120.3	44.0		
	15400	SGMR	46		1729.7		106.6			
	10700	PENN	3	1727	1728.6	4.7	88.7	38.3		
	9285	ARCE	45	1727.6	1728.6	4				
	9285	ARCE		1729	1729.7	2.6				
	9285	ARCE		1727.6	1728.6	1.4				
	8800	SGMR	45	1727.1	1728.5	15.8	62.2	24.1		
	8800	SGMR	45		1729.4		62.2			
	37000	SLOU	4	1728 U	1728.8	2 U	100.0U			
	4995	SGMR	20	1728.2	1729	11.5	3.3	1.6		
	7000	SAOP	29	1730.4		14.2				
	10700	PENN	29	1731.7	1731.7	29	22.2	11.1		
	9285	ARCE	29	1731.6		10 D				
	7000	SAOP	4	1744.6	1750.3	11	20.3	10.1		
	9400	HUAN	3	1745.9	1750.3	7.6	37.4	10.4		
	10700	PENN	3	1747.3	1750.2	7.4	69.0	15.1		
	15400	SGMR	3	1748.5	1750	4.6	96.9	18.8		
	9400	SLOU	3	1748.8	1749	2	45.0			
	8800	SGMR	4	1748.5	1750.2	5	28.1	10.2		
	7000	SAOP	22	1755.6		27.2	5.0			
	2800	OTTA	22	1820	1940	245	3.2	1.8		
	10700	PENN	20	1836.5	1838.3	10.8	10.1	2.2		
	8800	SGMR	3	1837.8	1838.5	5.7	11.4	4.5		
	4995	SGMR	1	1838.8	1840.2	6.1	1.5	.7		
	10700	PENN	3	2131	2131.3	2.8	16.3	1.5		
	10700	PENN	45	2251 U			375.0D			
	9400	TYKW	45	2251	2256.2	10	485.0	125.0		
	4995	BOUL	45	2251.5	2256.5	11.5	226.0	75.0		
	2700	PENN	45	2251 U			150.0D			
	15400	SGMR	46	2252	2253.9	10.2	301.0	75.0		
	15400	SGMR	46		2255.1		563.0			
	8800	SGMR	46	2252	2253.9	10.2	370.0	70.0		
	8800	SGMR	46		2256.1		540.0			
	8800	MANI	46	2252.2	2256.3	26.2	352.0	70.0		
	4995	MANI	46	2252.2	2256.4	26.2	229.0	53.0		
	4995	SGMR	46	2253	2254.2	9.3	50.0	20.0		
	4995	SGMR	46		2256.5		180.0			
	3750	TYKW	45	2253	2256.4	8	150.0	45.0		
	2800	OTTA	28	2253	2254.5	2.2	6.6	3.3		
	2695	MANI	4	2253.4	2256.4	25.3	72.0	27.9		
	2695	BOUL	3	2254.5	2257.5	12	6.2	27.0		
	2695	SGMR	4	2254.4	2256.7	8	74.7	10.0		
	2000	TYKW	45	2254	2257.1	7	60.0	24.0		
	1415	MANI	4	2254.4	2258.1	11.2	30.0	10.7		
	2800	OTTA	3	2255.2	2256.5	9.8	74.0	30.0		
	1420	BOUL	45	2255	2258	14.5	23.0	7.0		
	1415	SGMR	4	2255.3	2258.1	6.8	24.5	4.9		
	1000	TYKW	1	2255	2257	6	3.0	1.0		
	9400	TYKW	29	2301		120	42.0	15.0		
	3750	TYKW	29	2301		120	21.0	5.0		
	2000	TYKW	29	2301		110	10.0	4.0		
	2800	OTTA	29	2305		140	12.0	3.6		

Observatories:

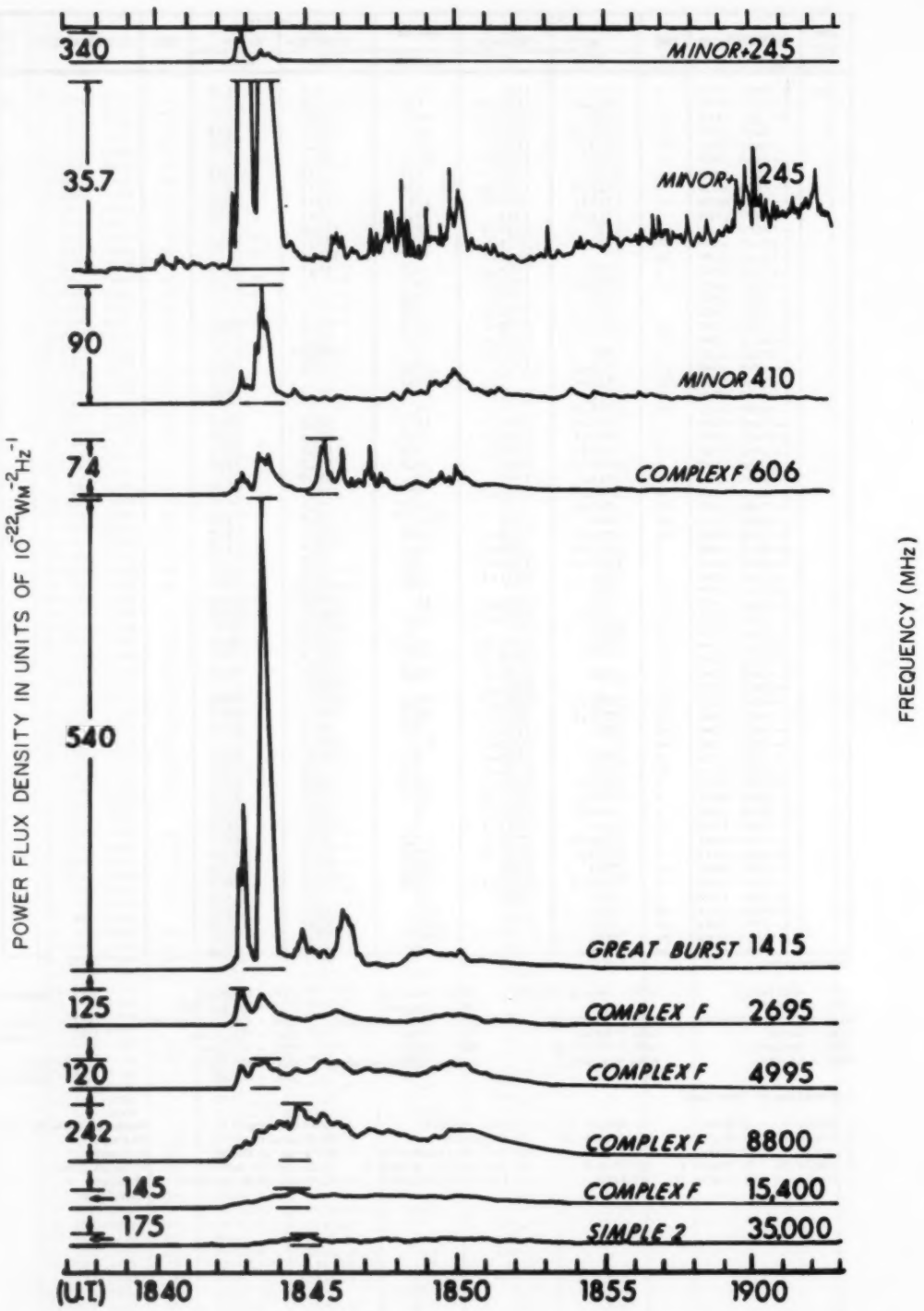
ABST = Abastumani
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CANR = Canary Islands
CRON = Carnarvon
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
IZMI = Moscow IZMIRAN
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
ONDR = Ondrejov
OTTA = Ottawa ARO
PENN = Penn. State Univ.
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SLOU = Slough
SGMR = Sagamore Hill
TRST = Trieste
TYKW = Toyokawa
UPIC = Upice
VORO = Voroshilov

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURST

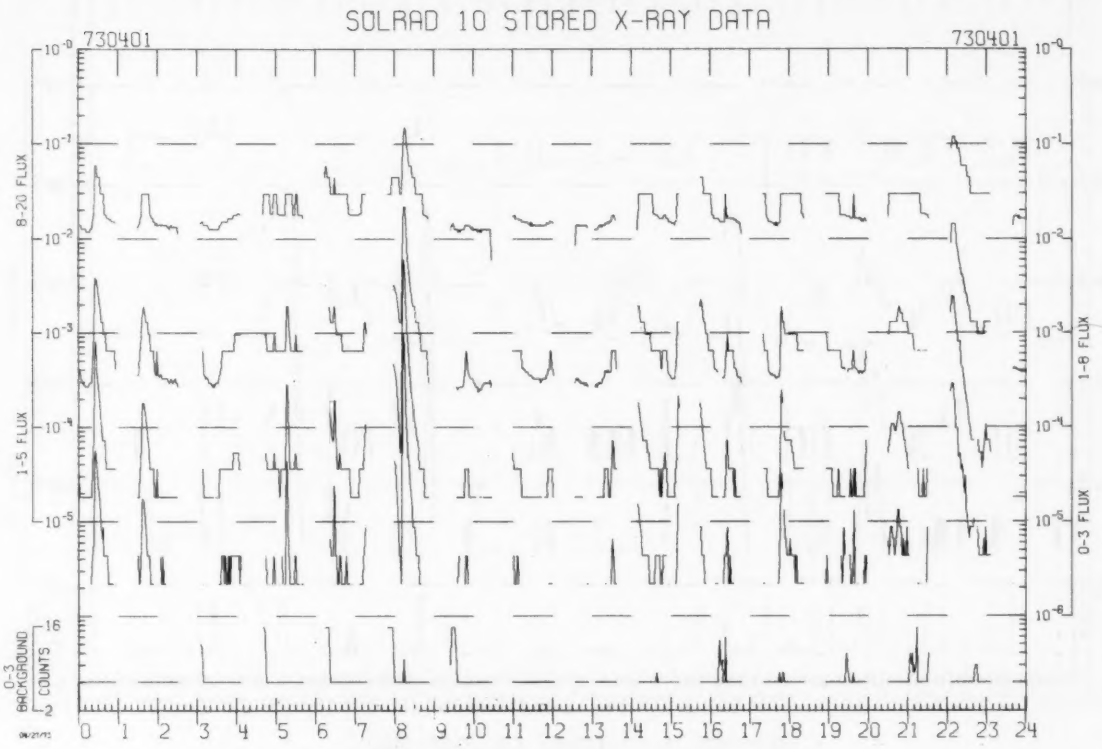
APRIL 11, 1973

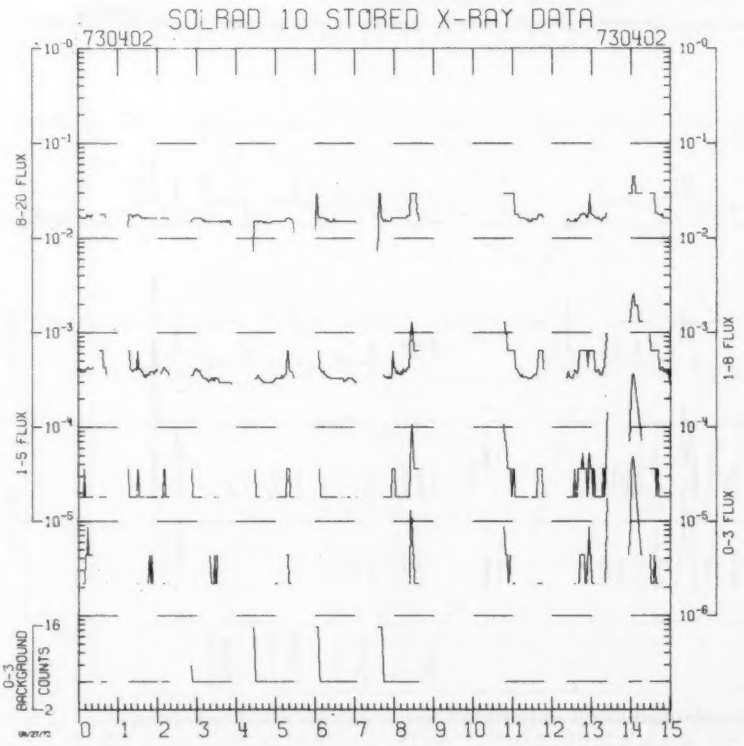


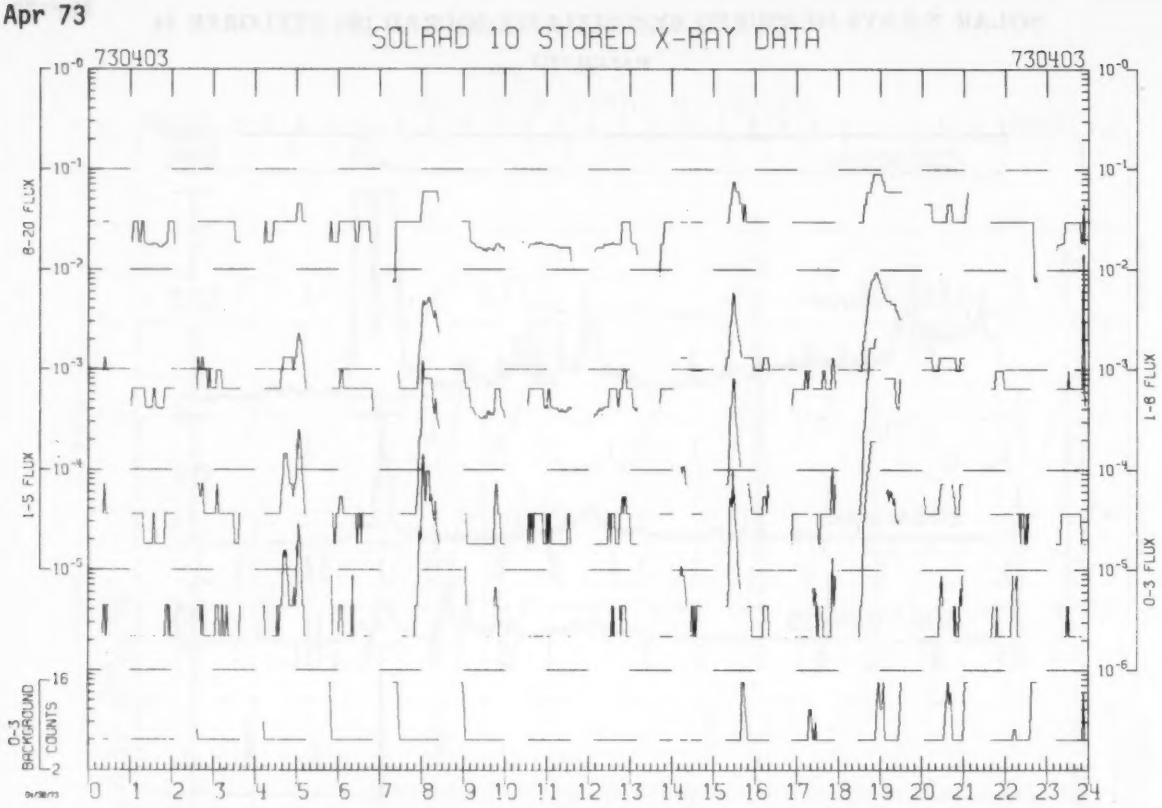
RADIO BURST OBSERVED 11 APRIL, 1973 SAGAMORE HILL RADIO OBSERVATORY
HAMILTON, MASS.

SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 10 - EXPLORER 44

MARCH 1973



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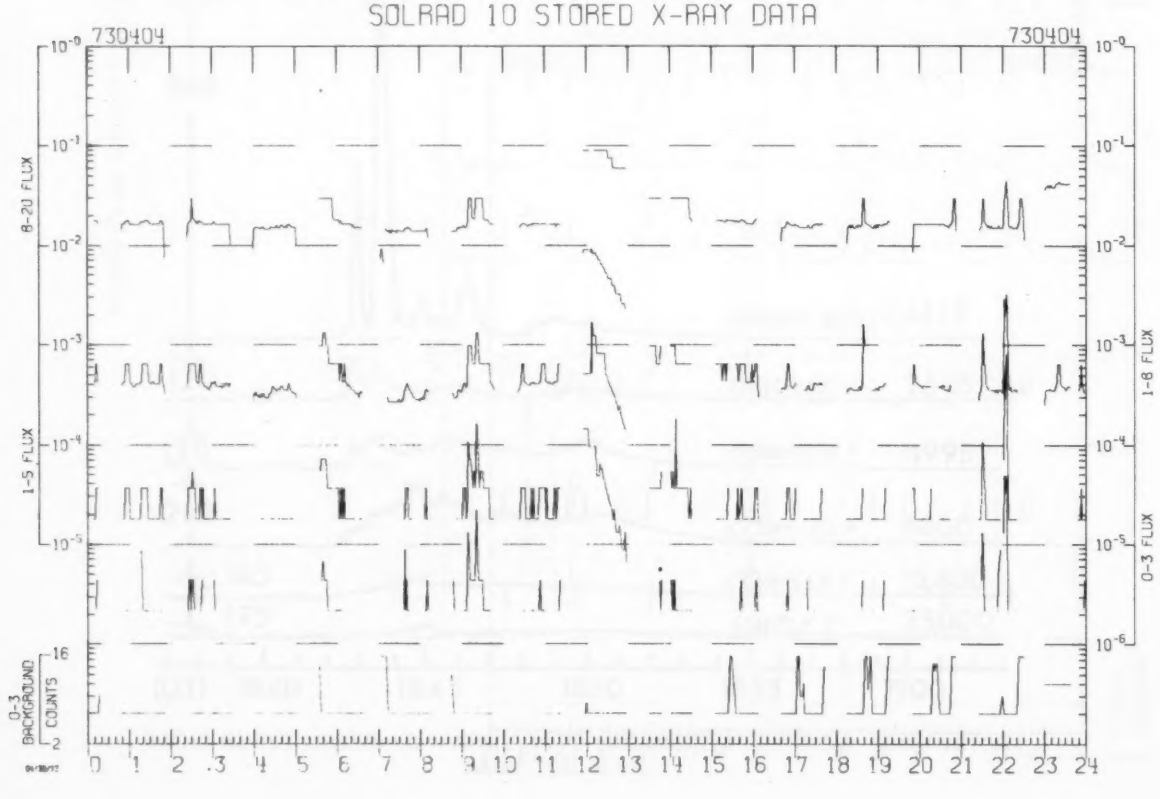
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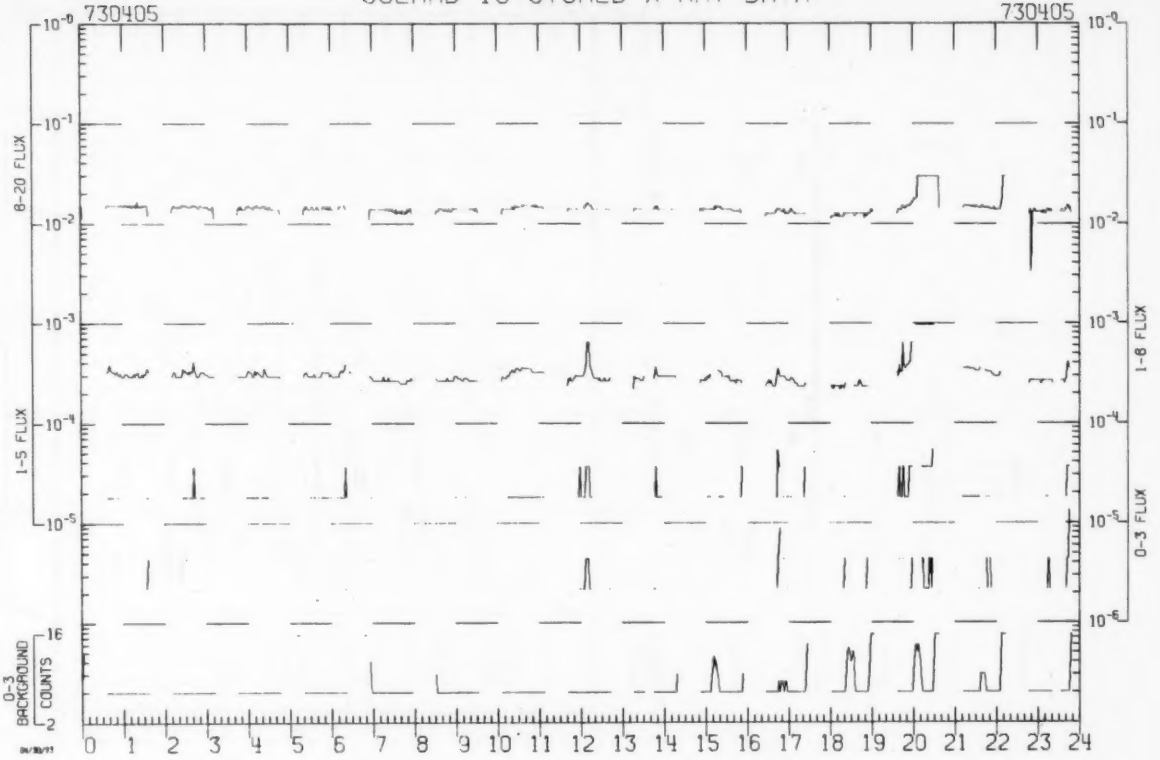

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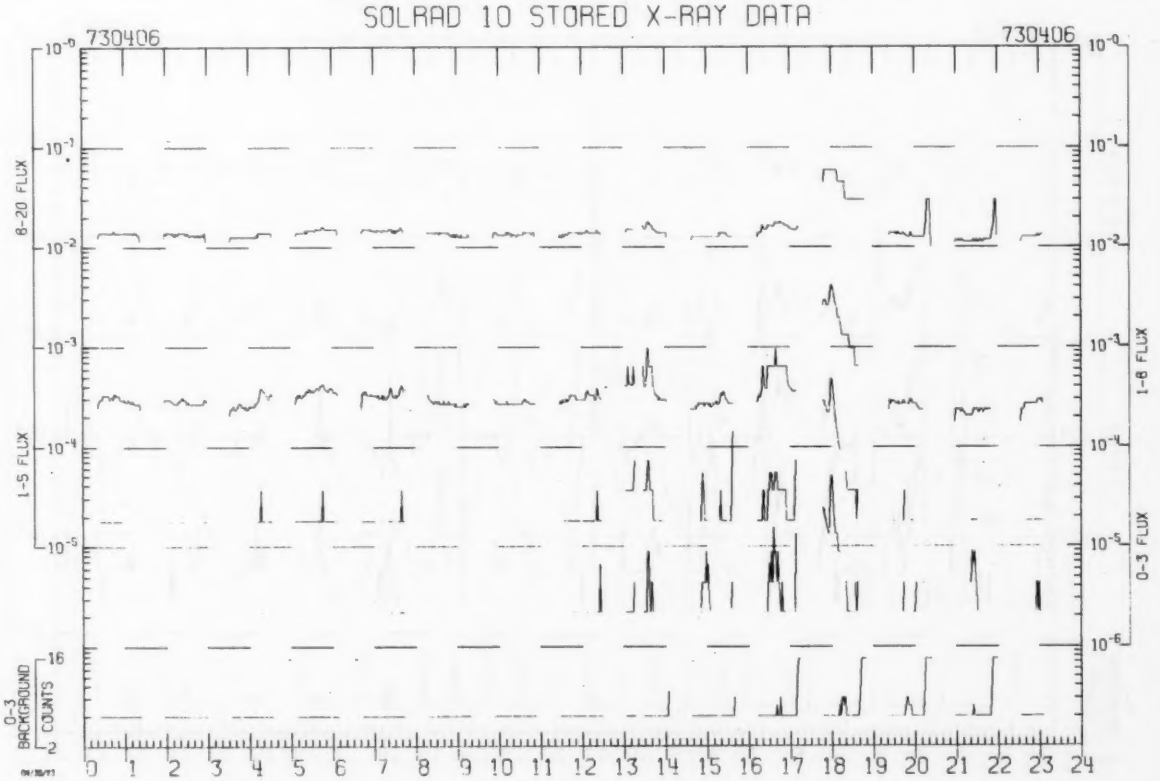

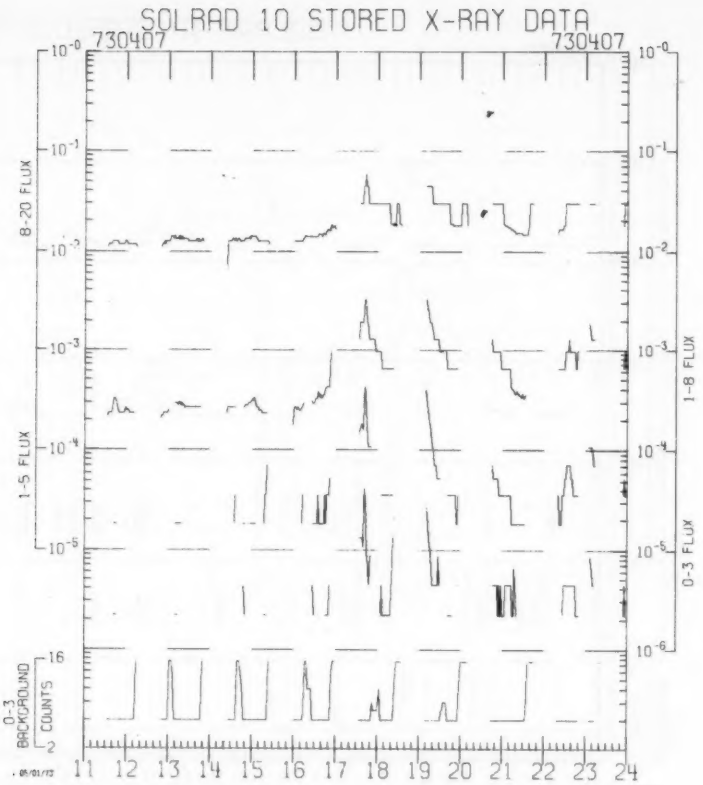
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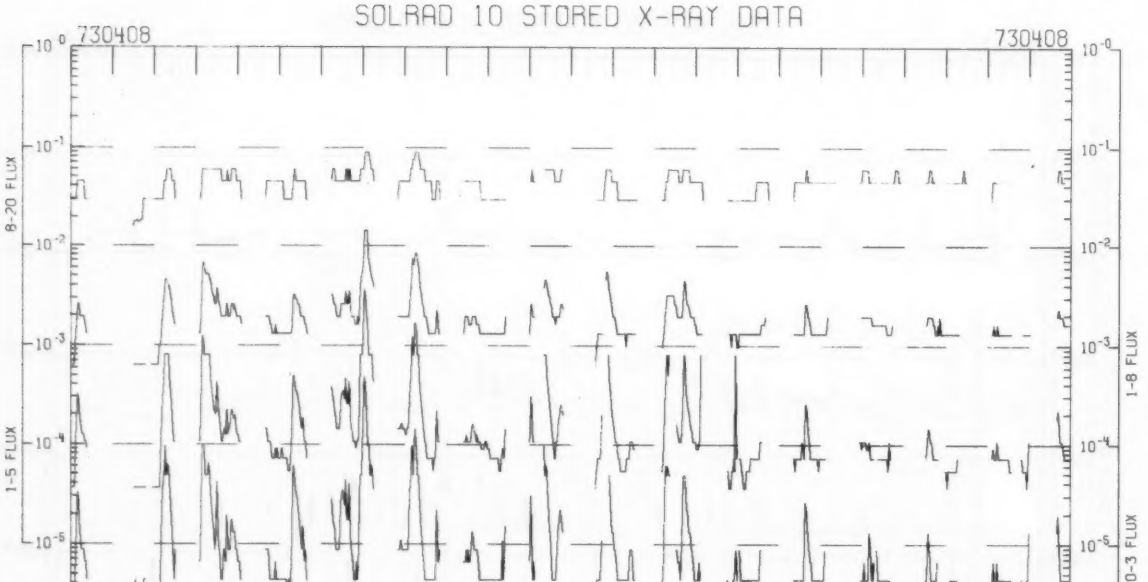
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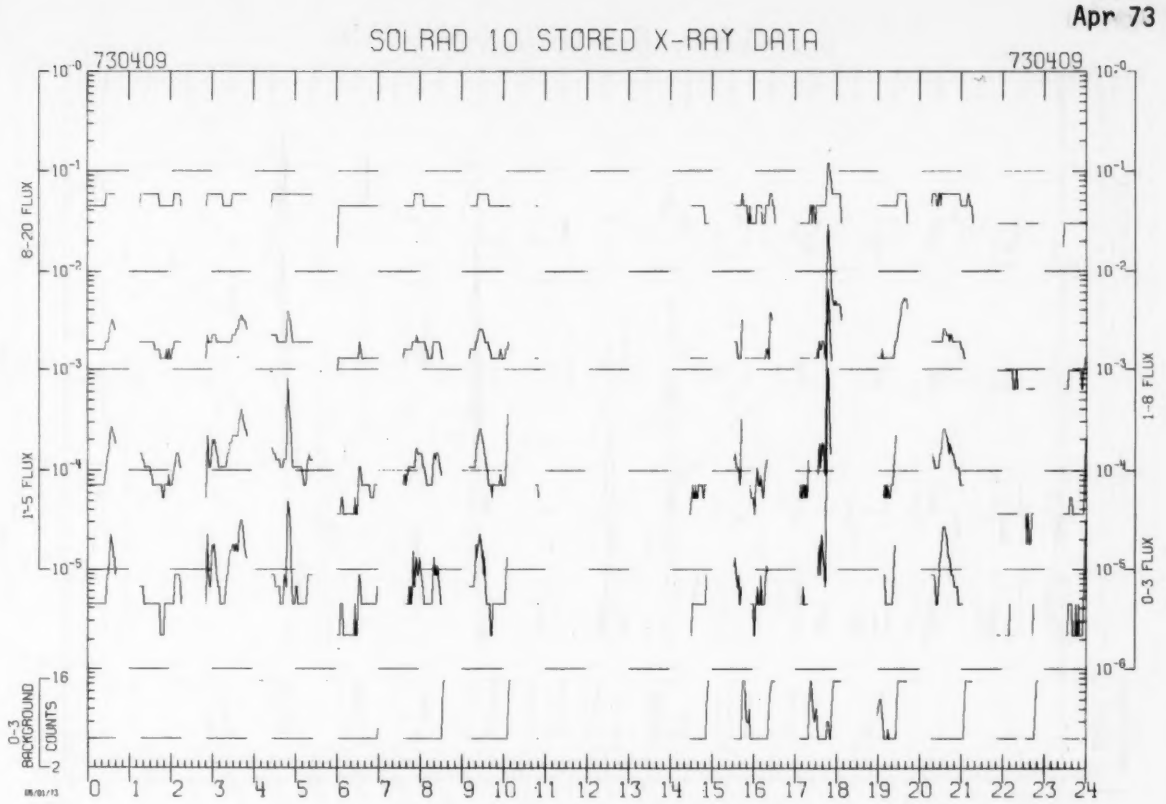
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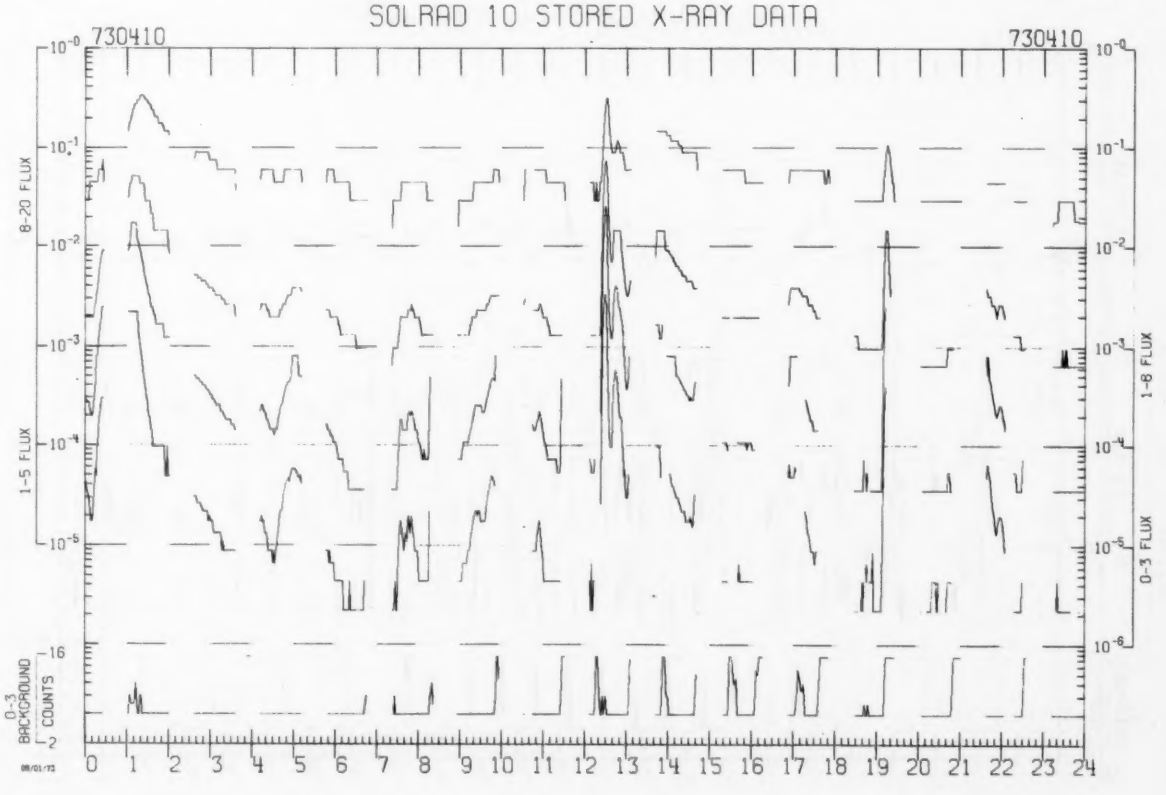
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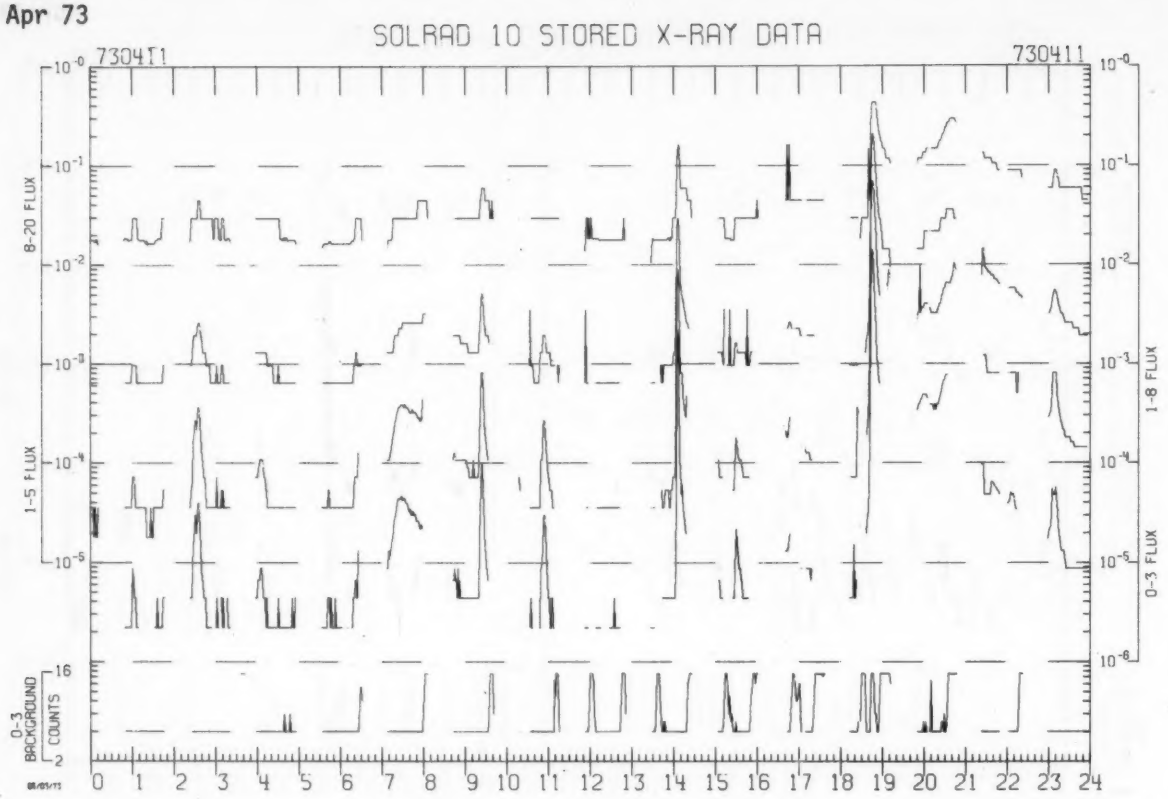
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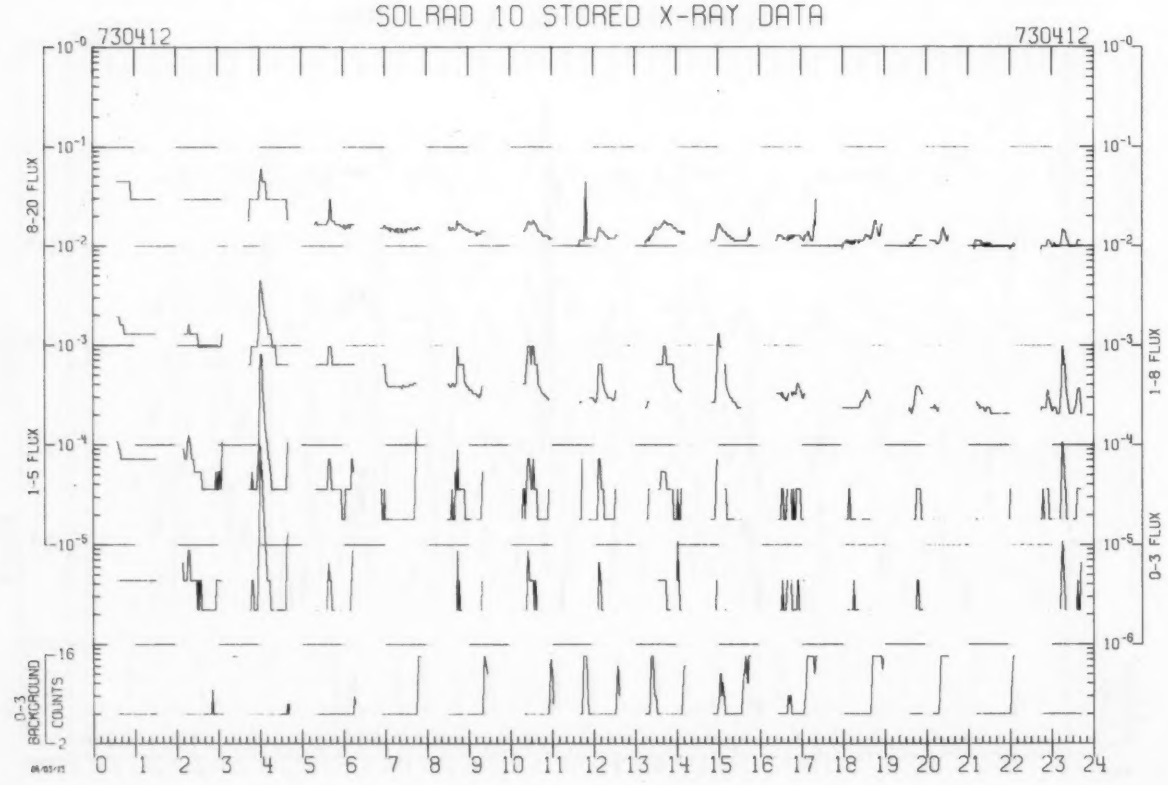
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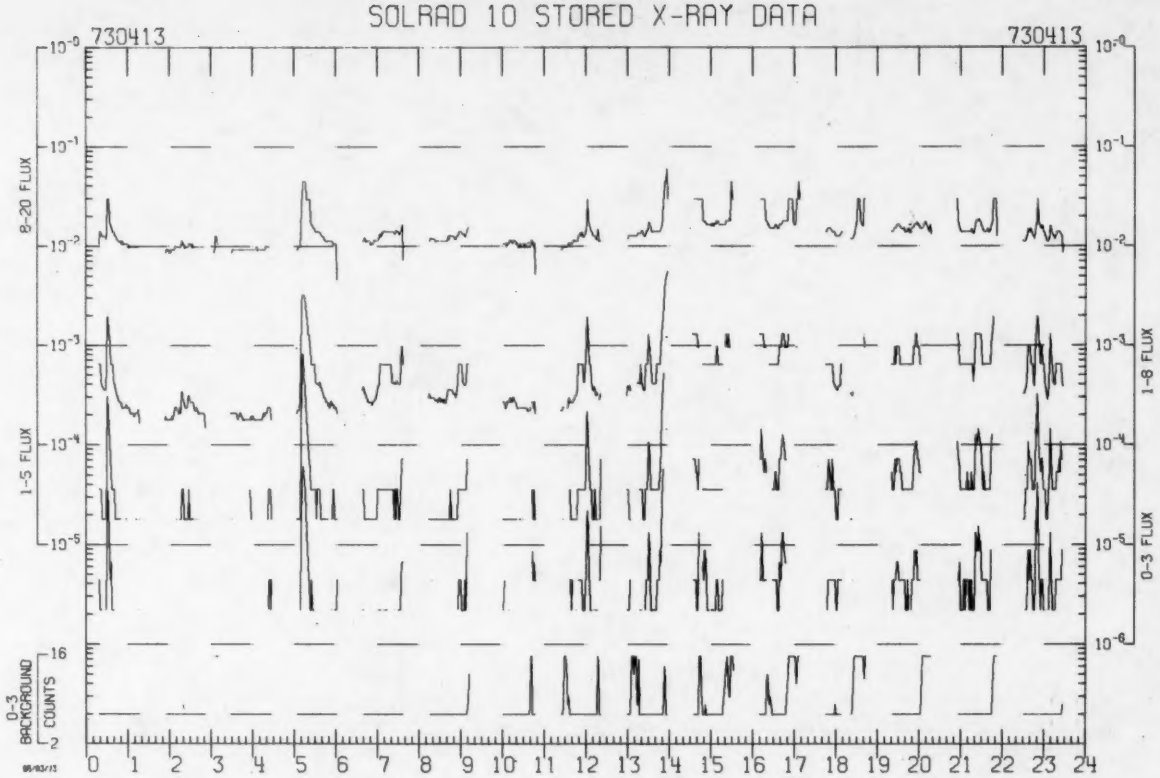

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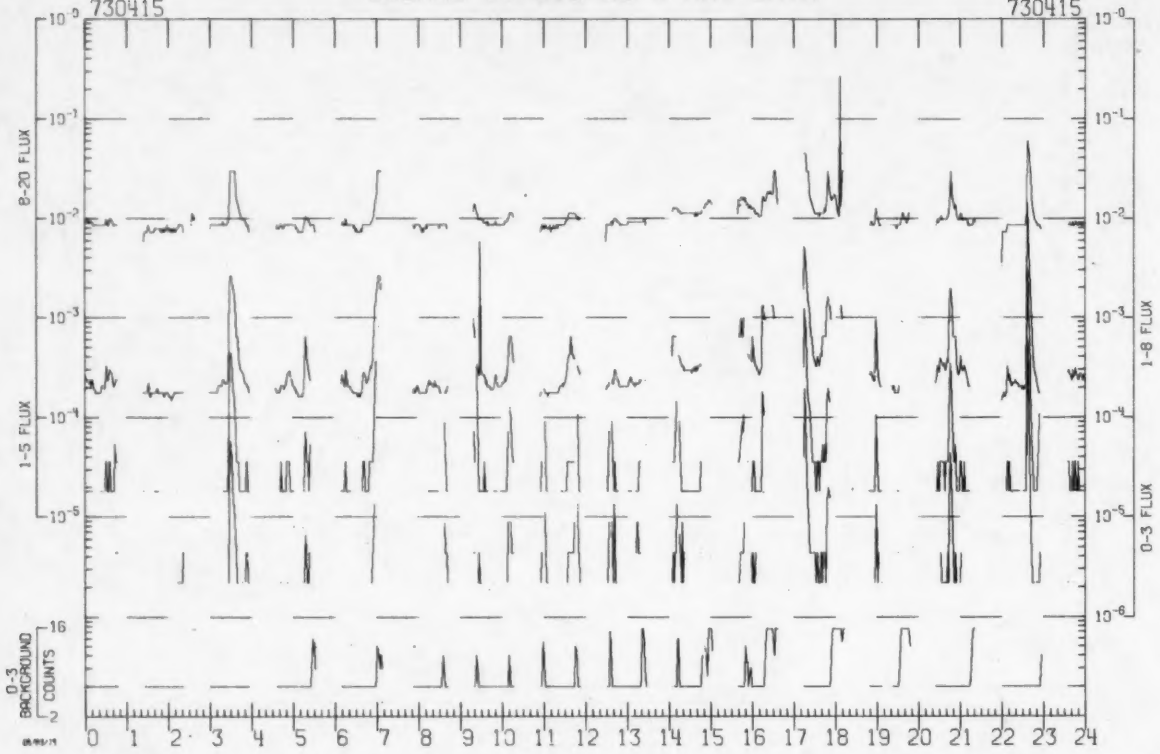

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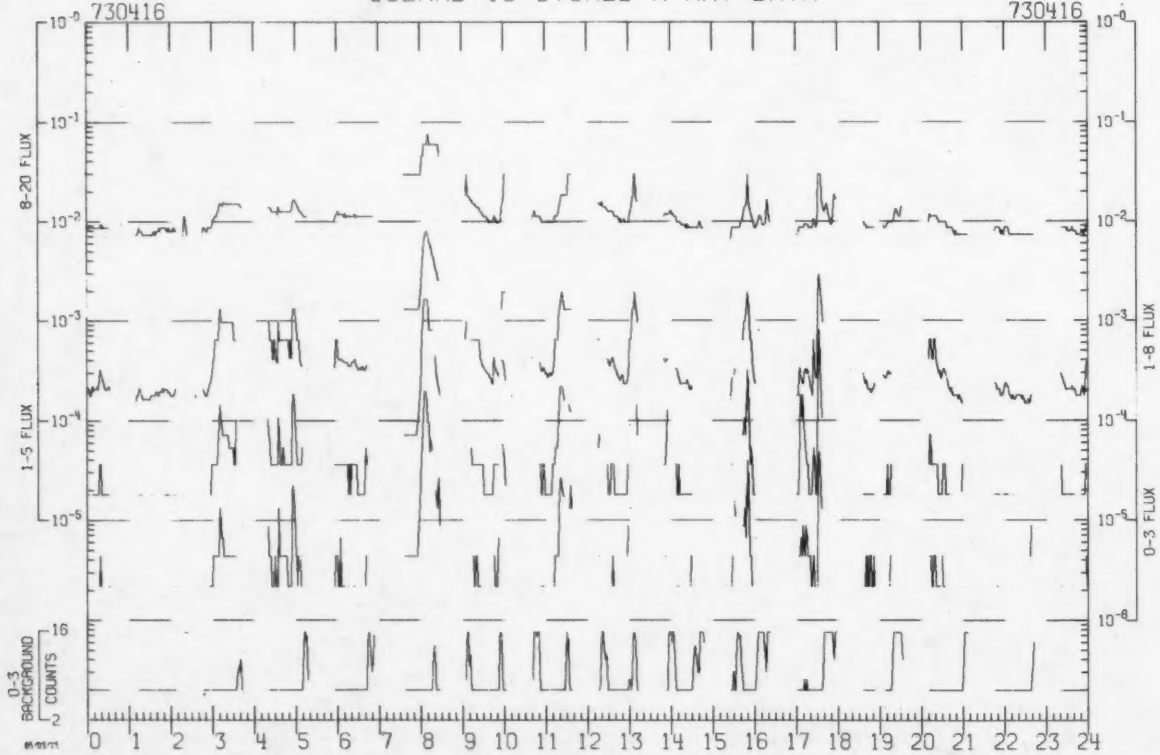

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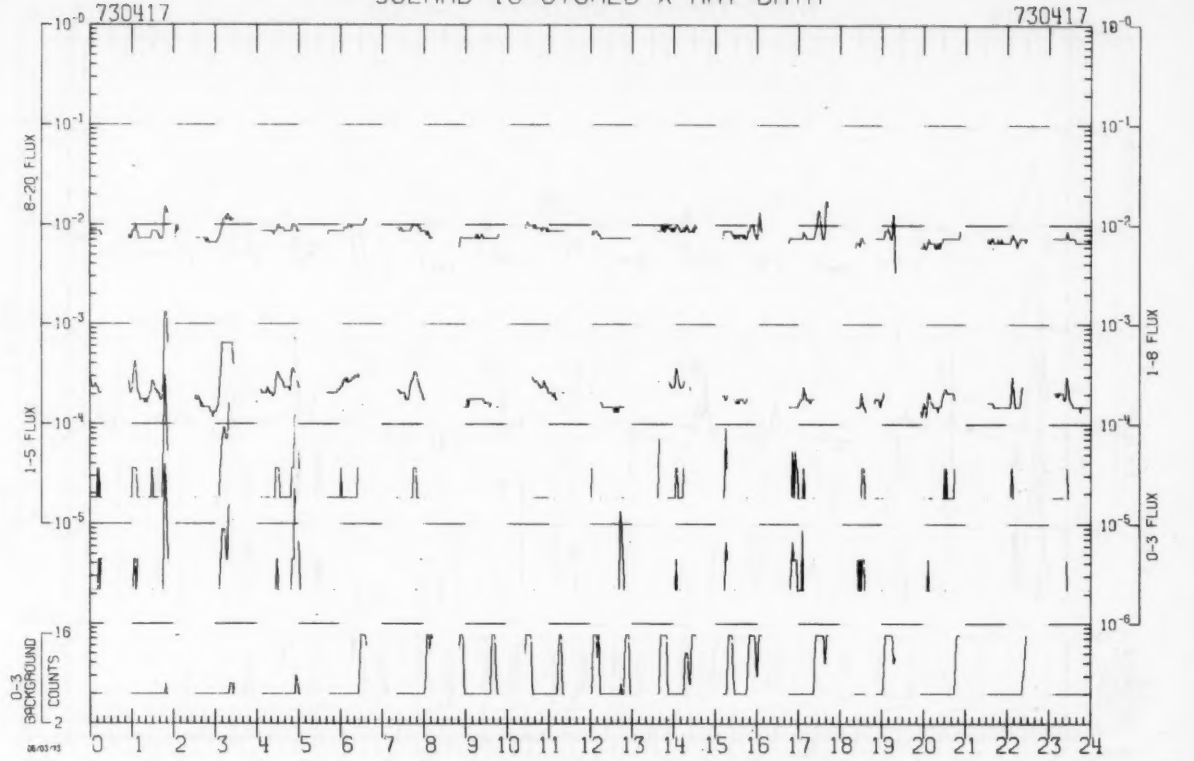

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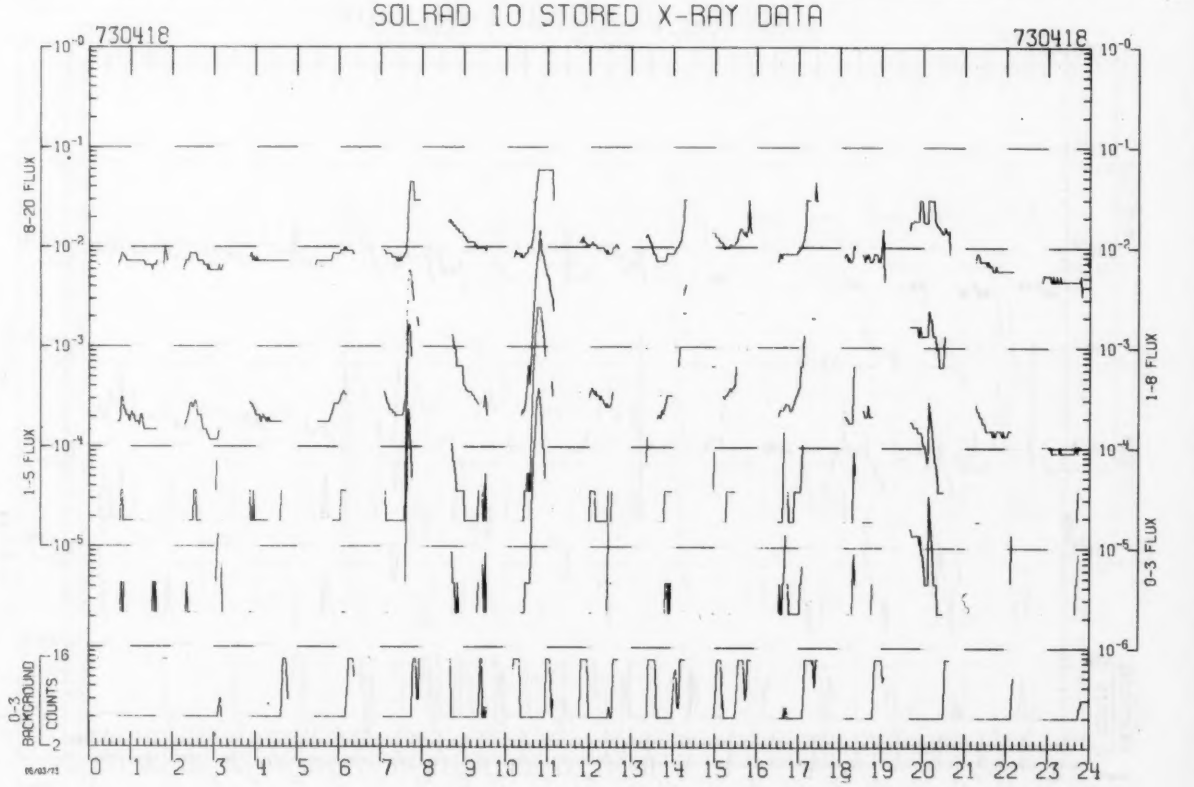

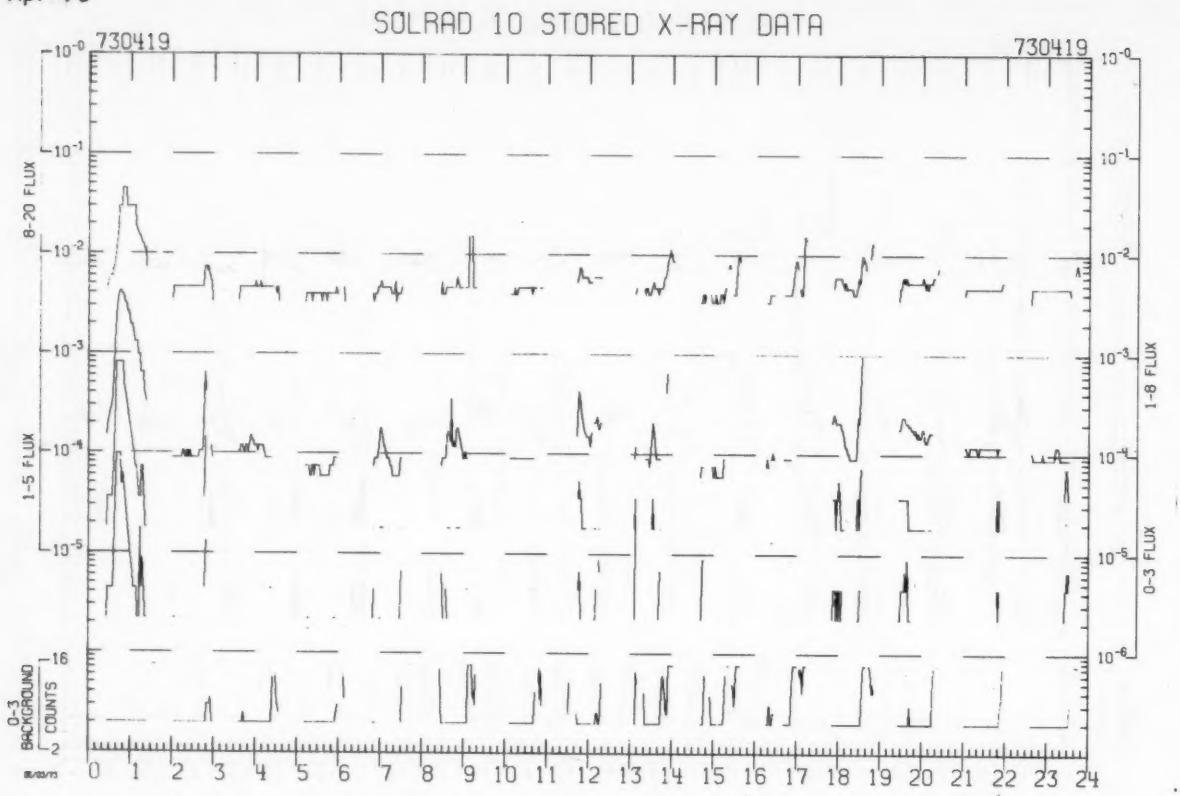
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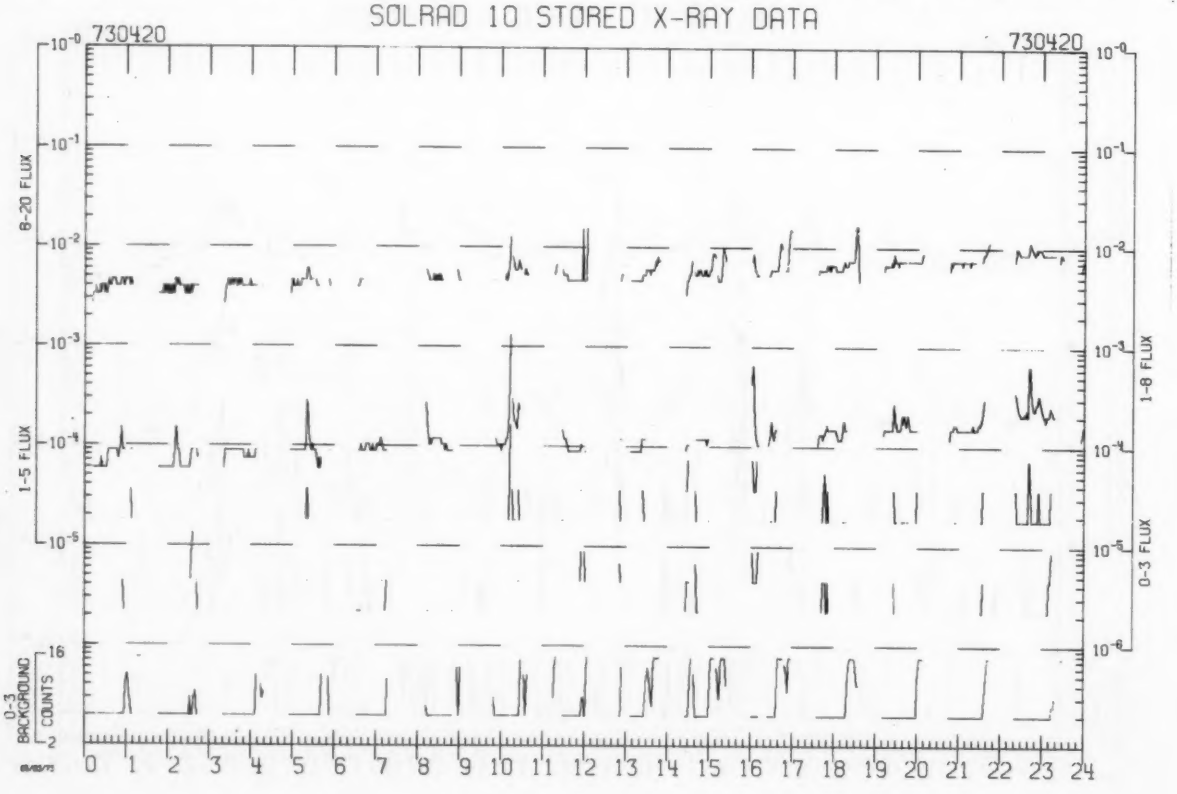
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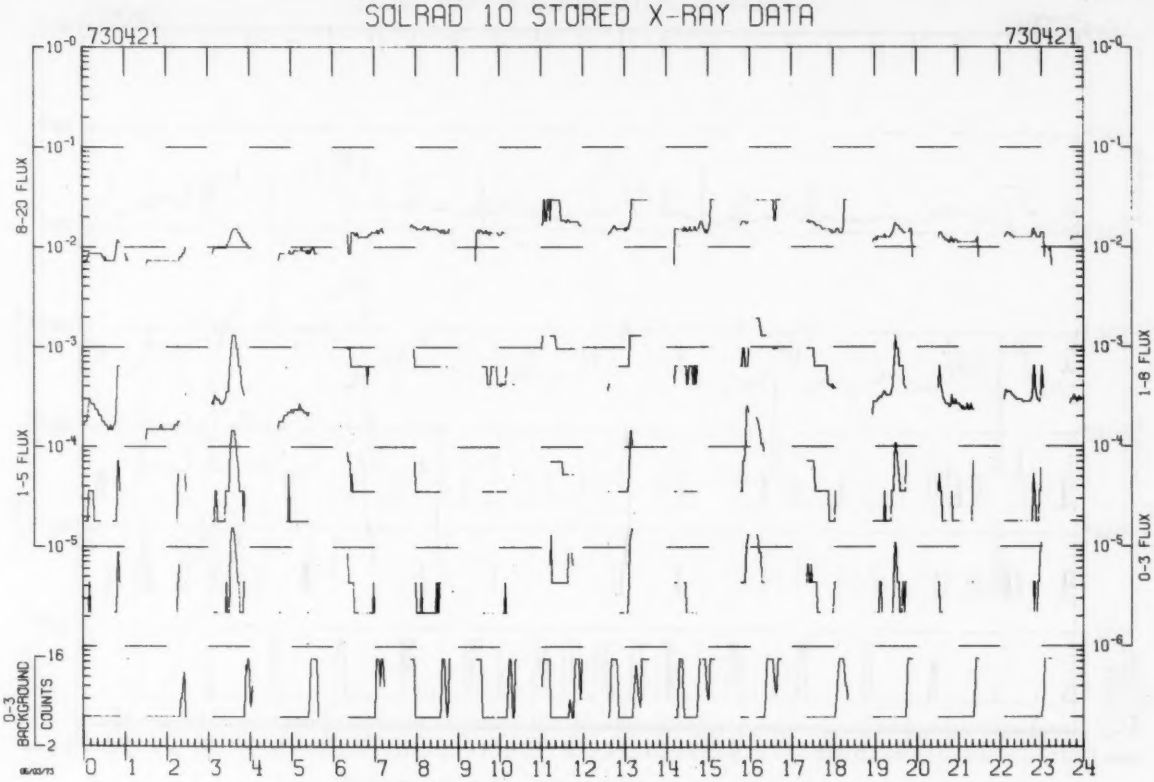

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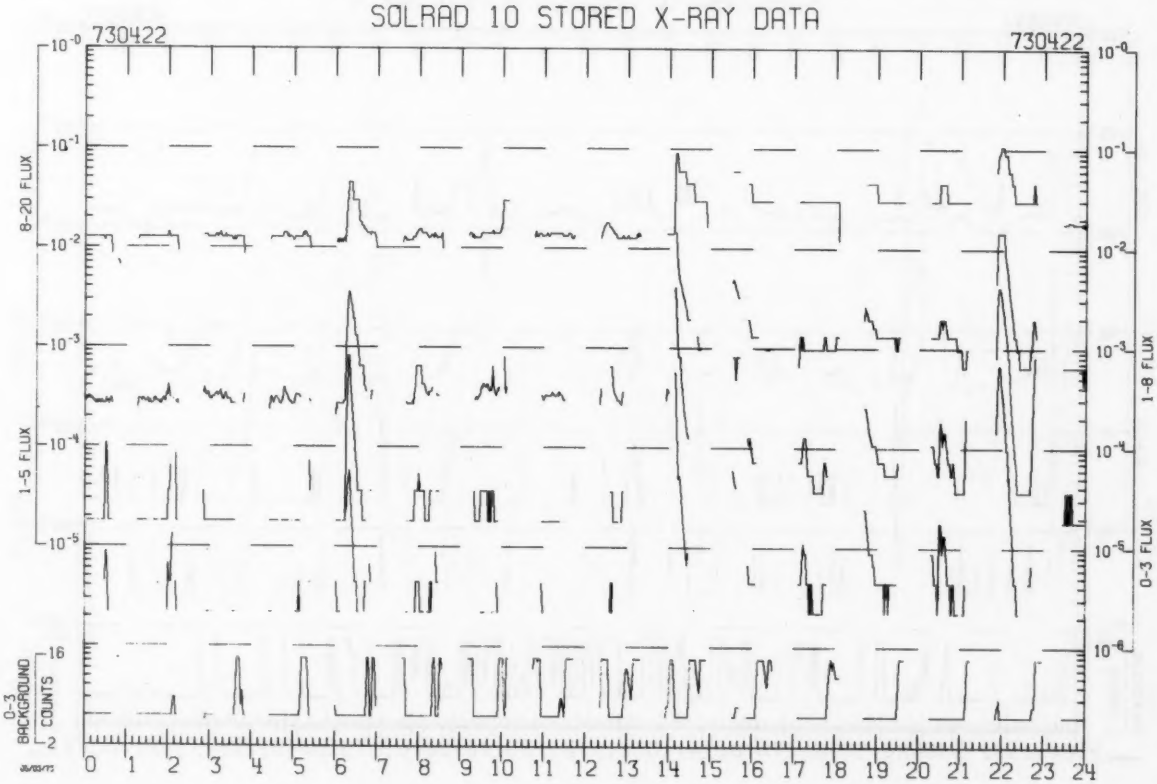

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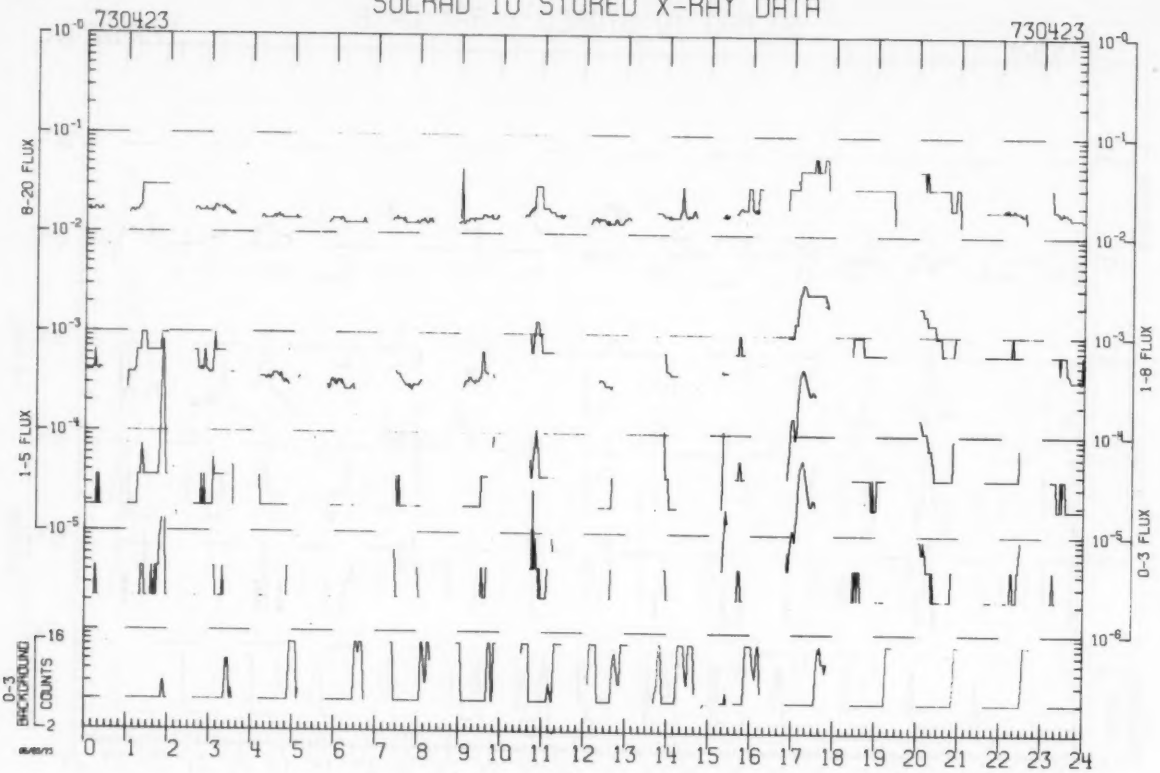

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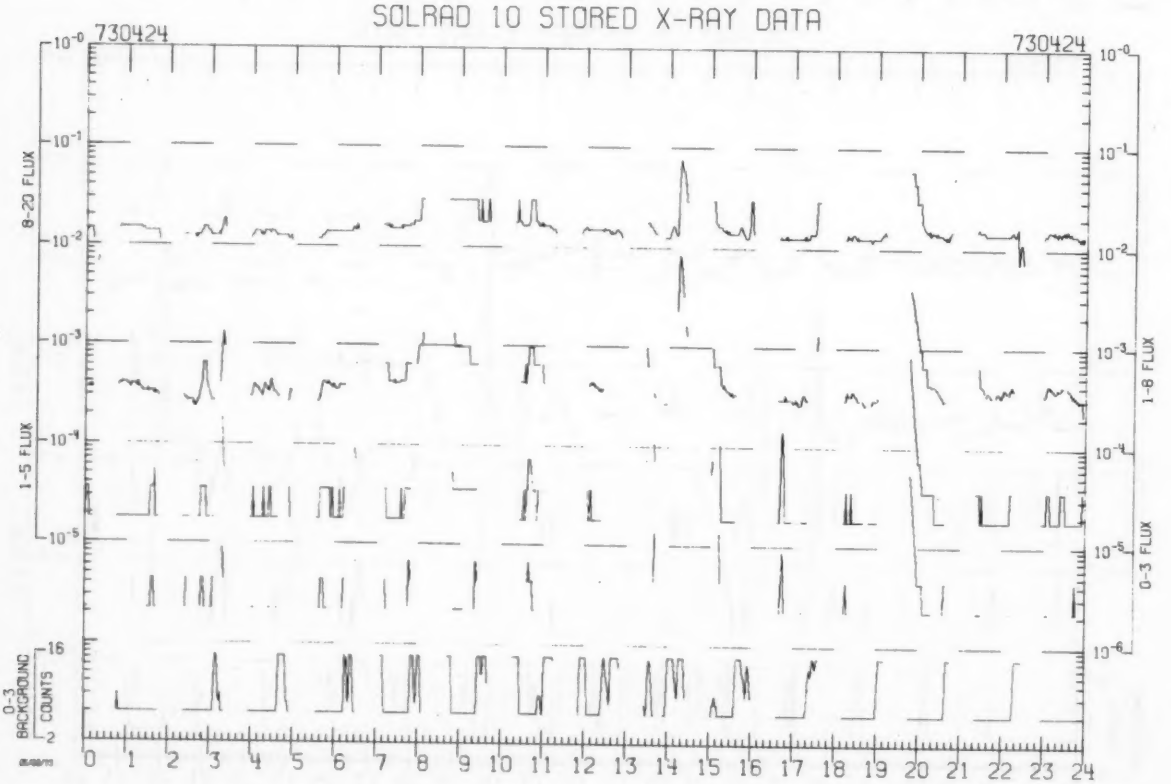

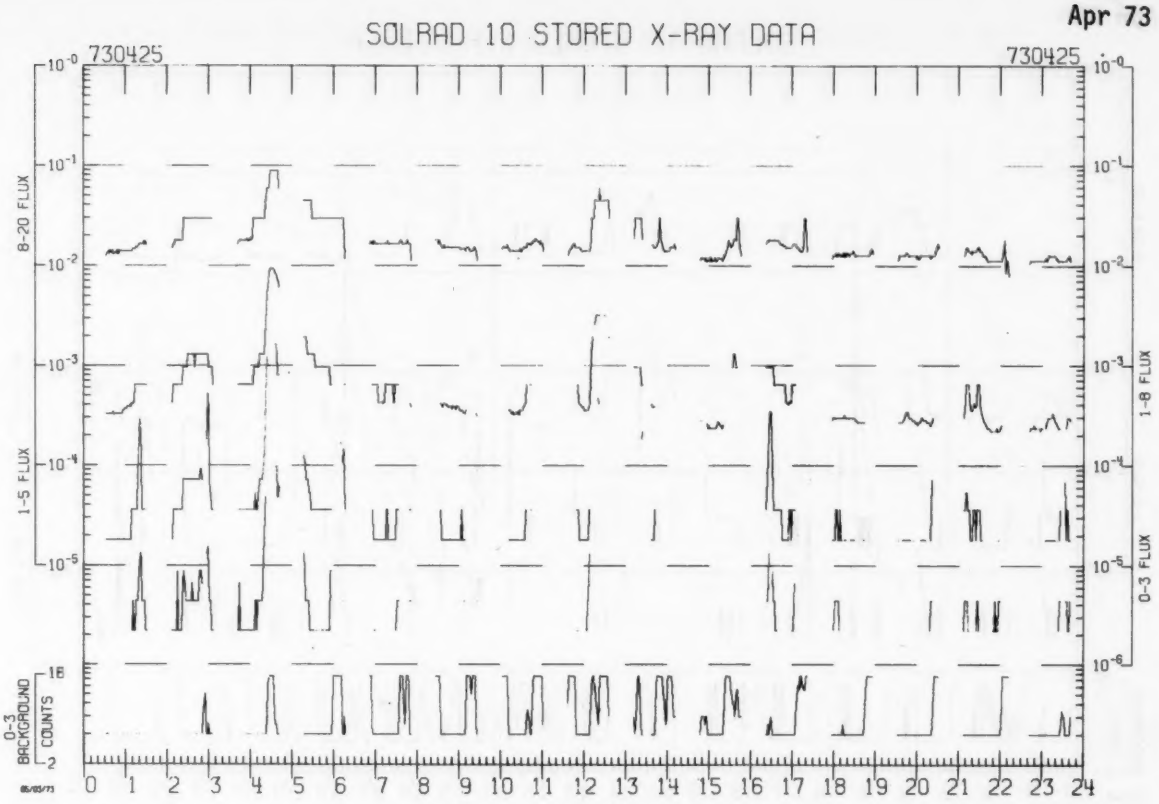
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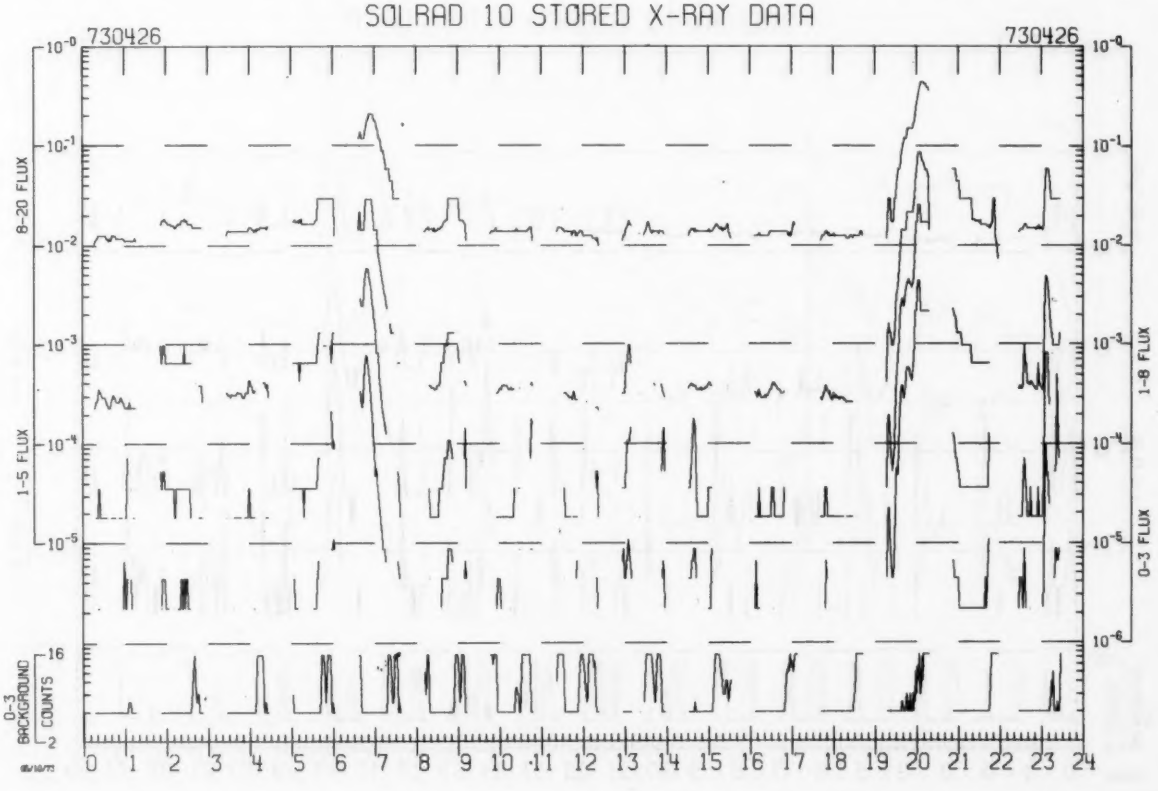
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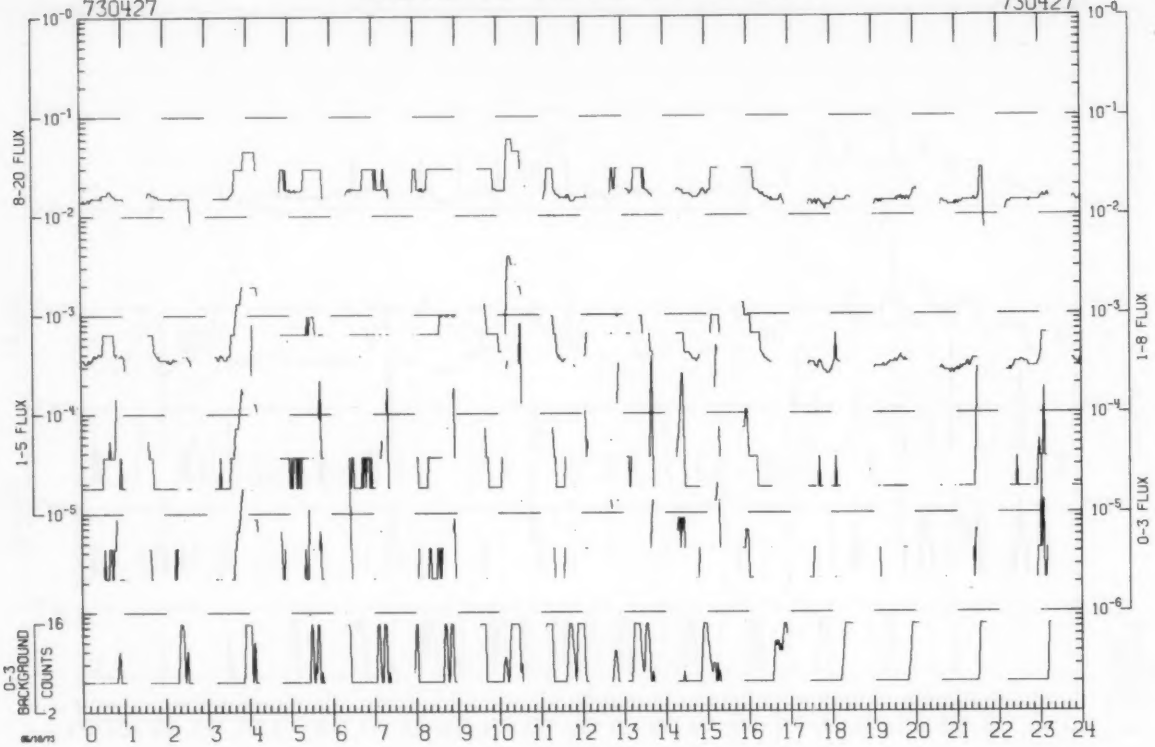

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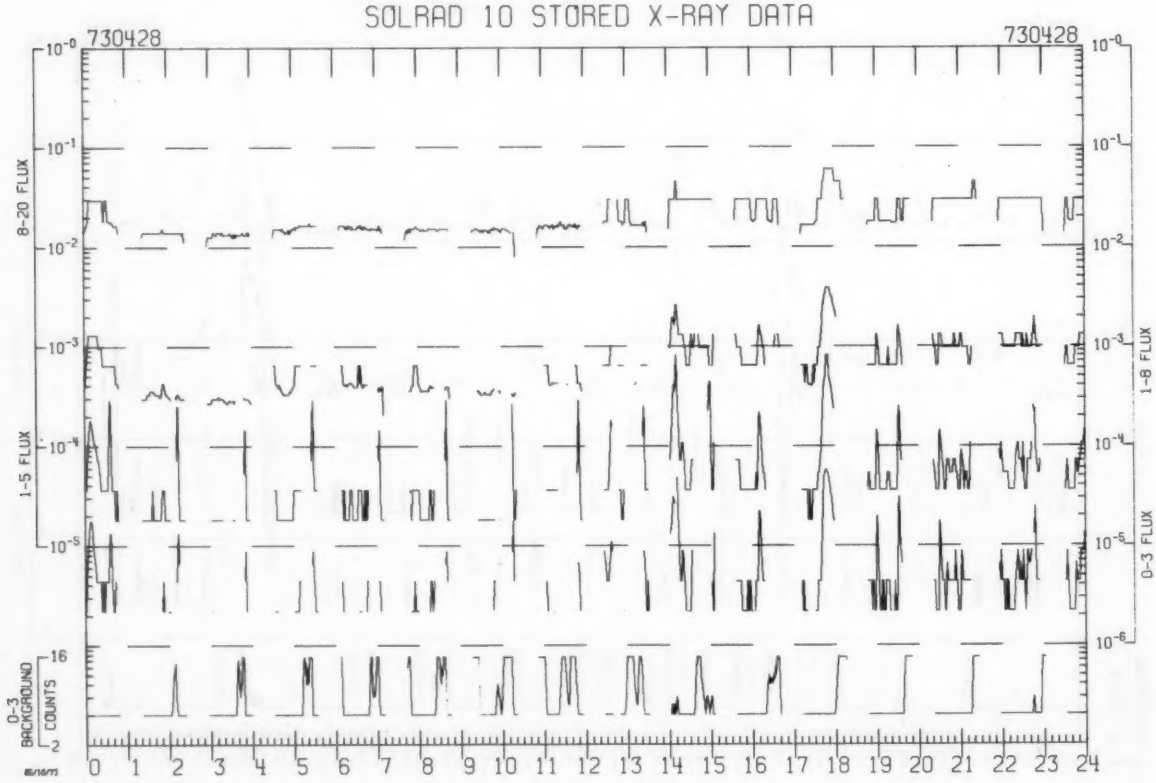

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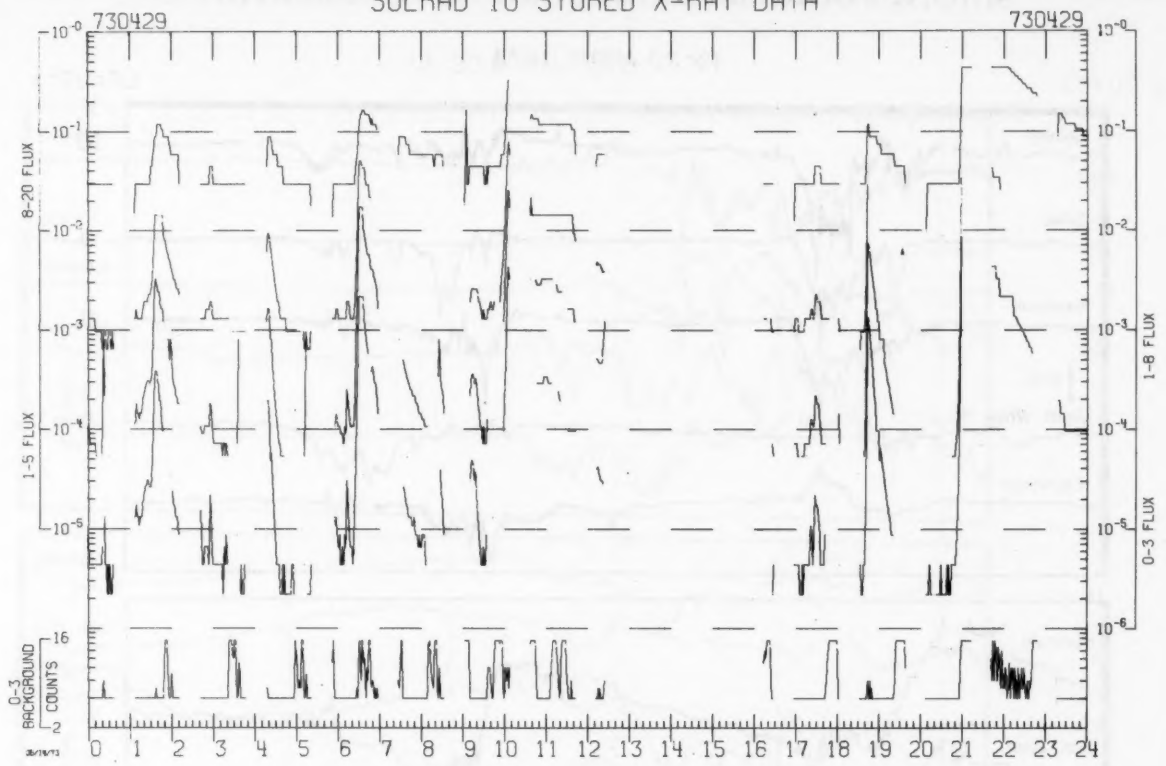

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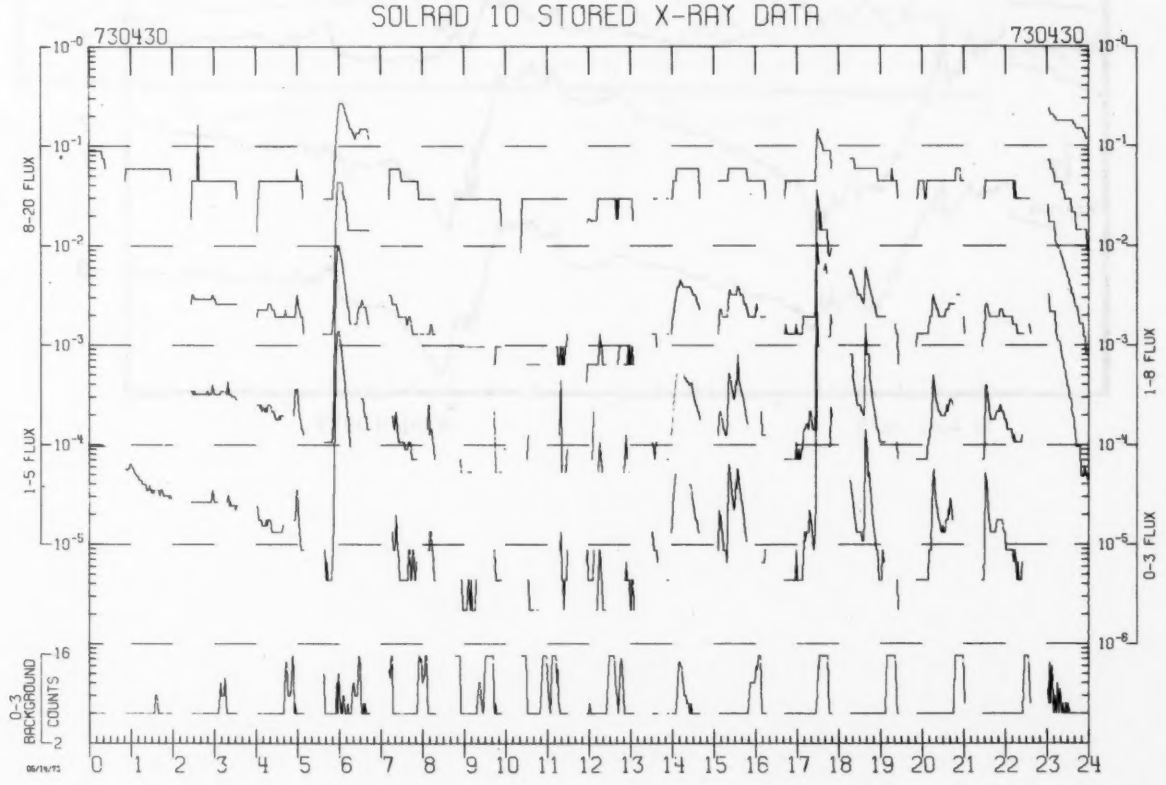
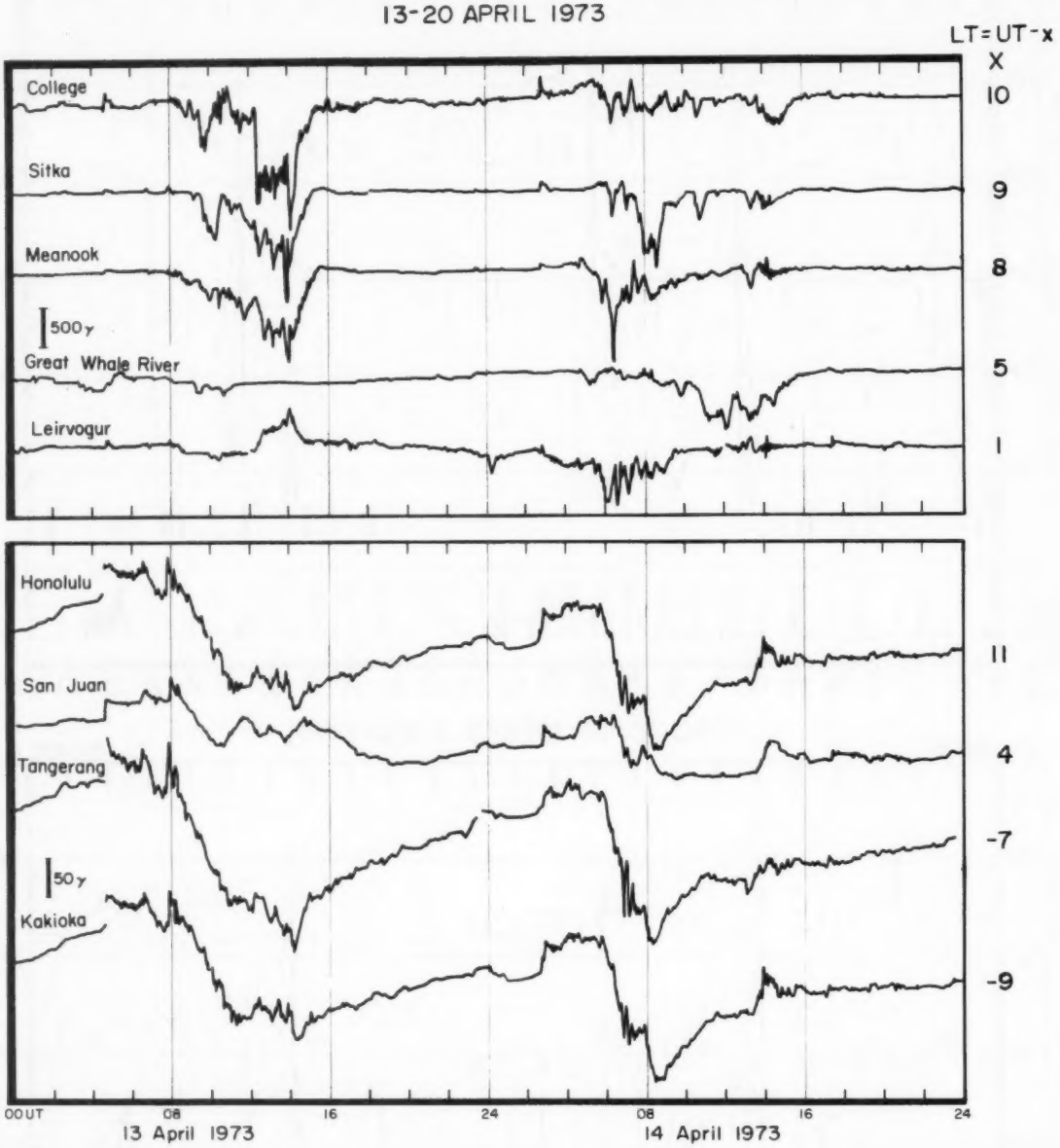


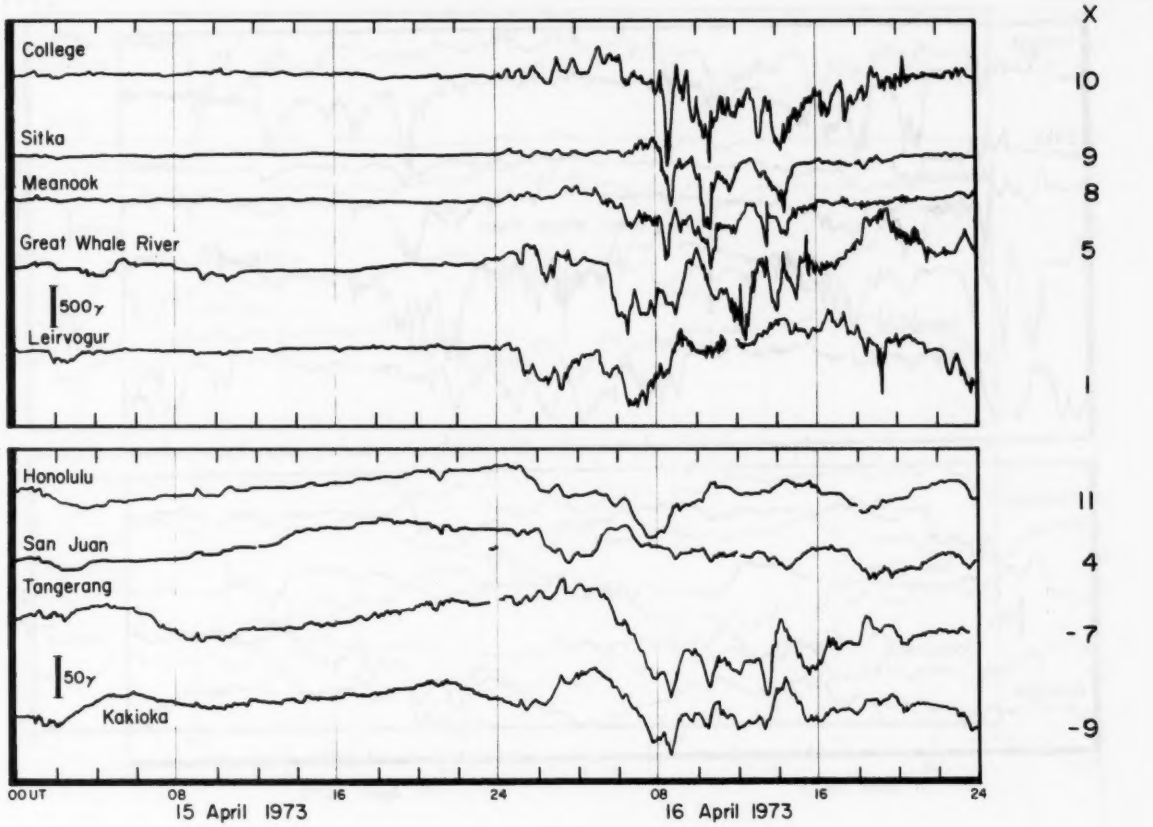
MAGNETOGRAMS OF GEOMAGNETIC STORMS

13-20 APRIL 1973



MAGNETOGRAMS OF GEOMAGNETIC STORMS

13-20 APRIL 1973



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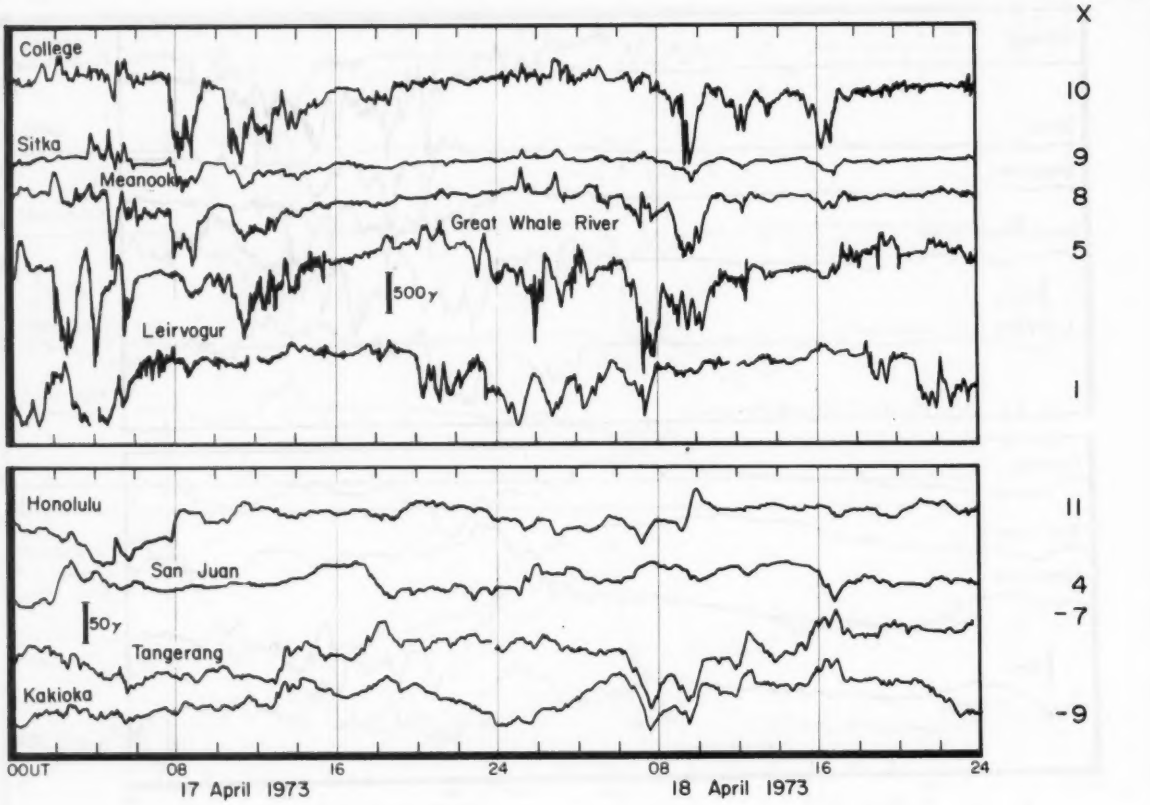

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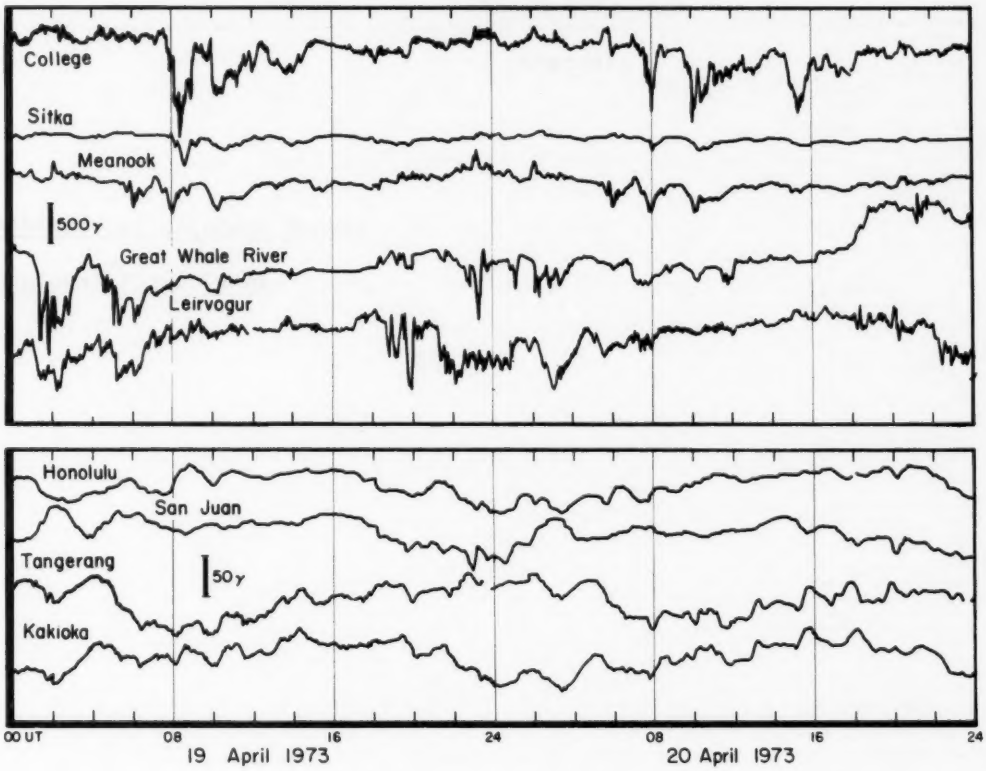

LT=UT-x

X

10

9

8

5

1

11

4

-7

-9

SGD 350 Part II (Comprehensive)

MARCH 1973 DATA

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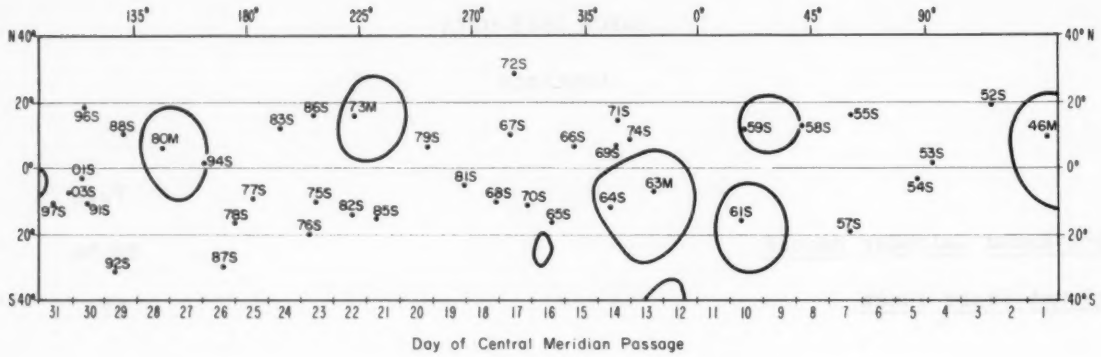
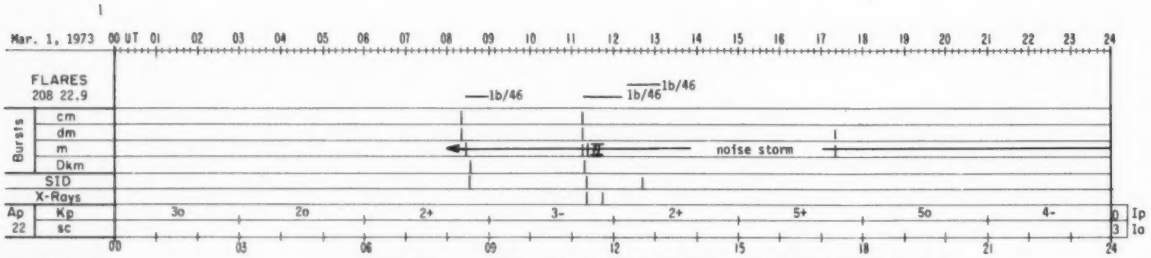
Regional Flare Index	95

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ABBREVIATED CALENDAR RECORD

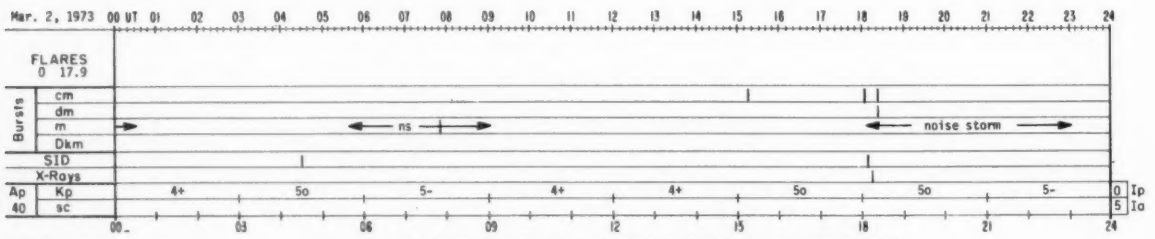
MARCH 1973





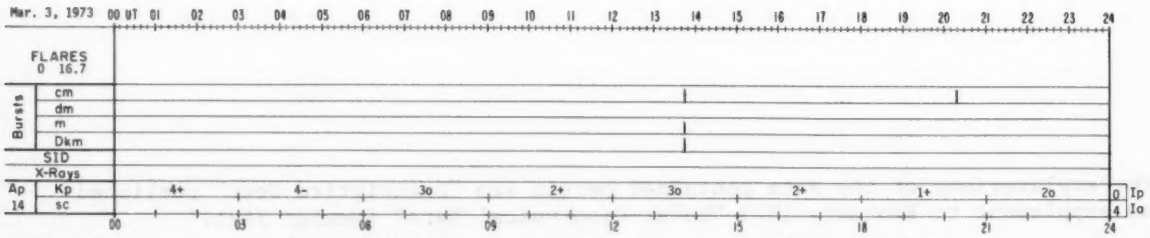
101 10 cm flux
40 Rz
CMP 12246 N07 19120 N07 (βp)5
(19127) N07 (αp)2 CMP March 2

Aurora overhead over USSR at ϕ = 54° 1300-1400 and ϕ = 57° 1700-1900, auroral activity visible as faint glow over British Isles at ϕ = 59° 2245-2400; no coronal data 7 days earlier on E. limb, very br. green corona 7 days later on NW limb.



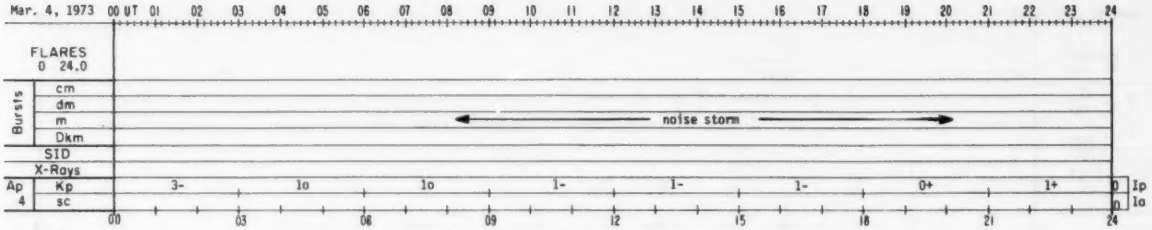
103 10 cm flux
38 Rz

Aurora overhead over USSR at ϕ = 59° 1100-1200, 1300-1500 and ϕ = 49° 2000-2100, auroral glow visible over British Isles at ϕ = 59° 2350; moderately br. green corona 7 days earlier on NE limb.



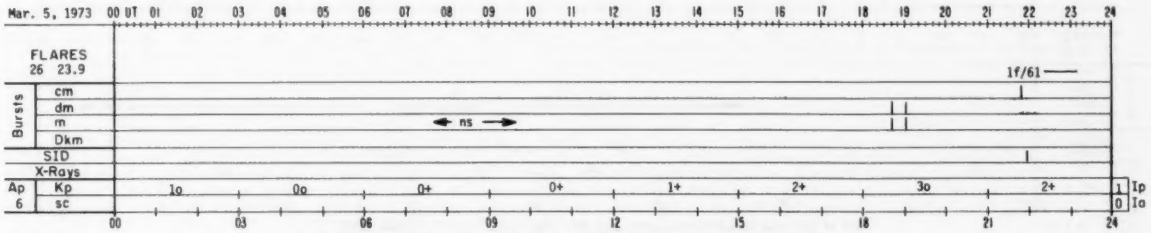
100 10 cm flux
35 Rz
CMP 12252 N20 (4) (19122) N16 (α)2

Aurora overhead over USSR at ϕ = 59° 1800 and 2100-2200 and ϕ = 58° 1900-2000; no coronal data 7 days earlier on E. limb.



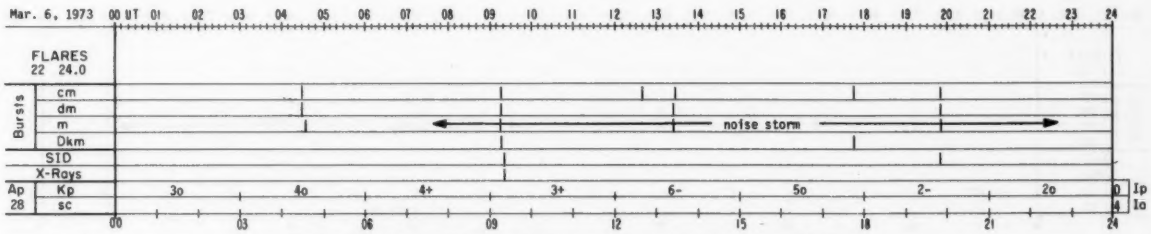
98 10 cm flux
32 Rz
CMP 12253 N01

One of five most magnetically quiet days, slight activity 0000-0300; no coronal data 7 days earlier on E. limb.



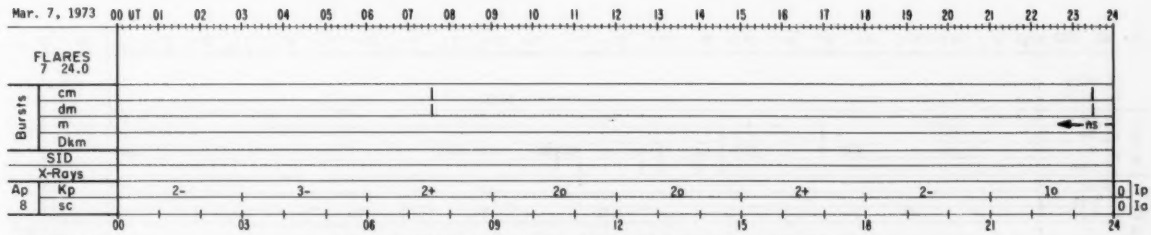
96 10 cm flux
22 Rz
CMP (12254) S03

One of ten most magnetically quiet days; aurora overhead over USSR at ϕ = 57° 2300, auroral glow visible over British Isles at ϕ = 58° about 2400; no coronal data 7 days earlier on E. limb.



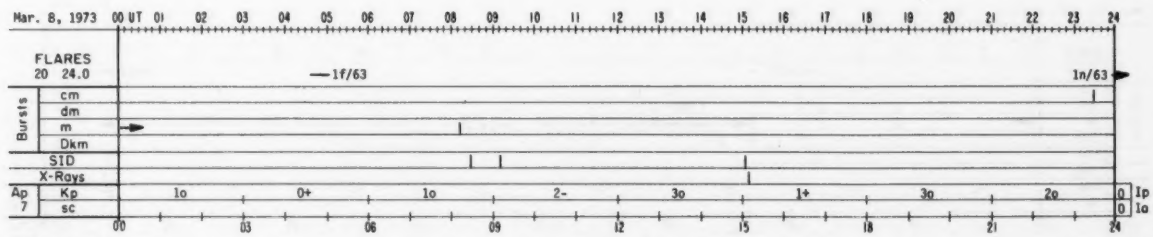
100 10 cm flux
32 Rz

Aurora overhead over USSR at ϕ = 59° 1300, ϕ = 54° 1400 and 1600 and ϕ = 53° 1500; auroral glow visible between clouds over British Isles at ϕ = 56° 0250-0400; no coronal data 7 days later on W. limb.



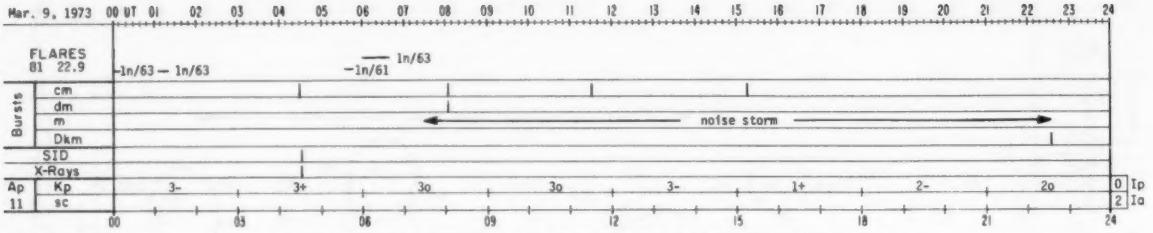
94 10 cm flux
38 Rz
CMP 12255 N17 (19124) N15 (α)2
12257 S19 (4)

One of ten most magnetically quiet days but with very slight activity throughout; aurora overhead over USSR at ϕ = 59° 1500 and 1800; no coronal data 7 days later on W. limb.



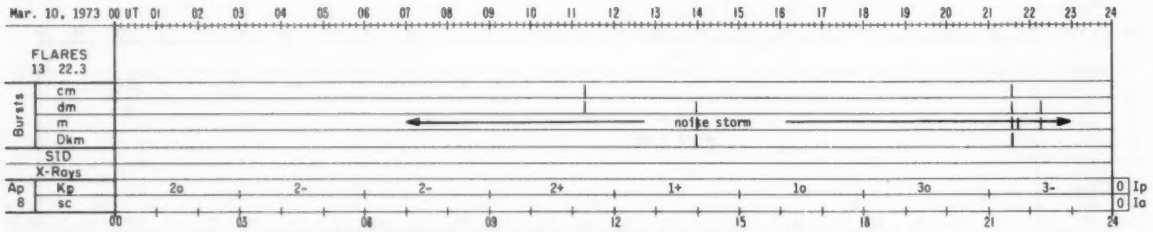
100 10 cm flux
50 Rz
CMP 12258 N13

One of ten most magnetically quiet days; no coronal data 7 days later on W. limb.



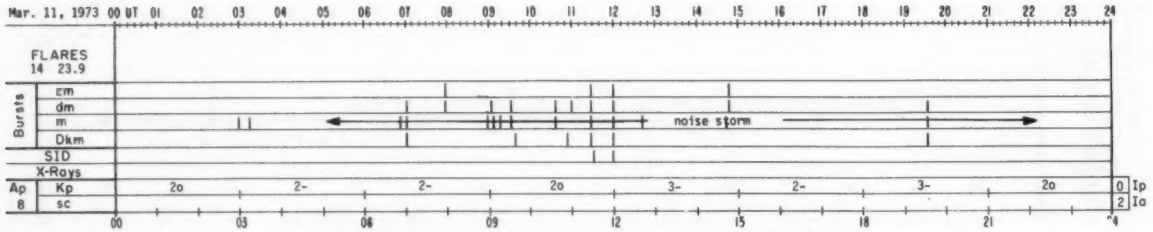
106 10 cm flux
53 Rz

Aurora overhead over USSR at ϕ = 59° 2000-0110; no coronal data 7 days earlier on E. limb.



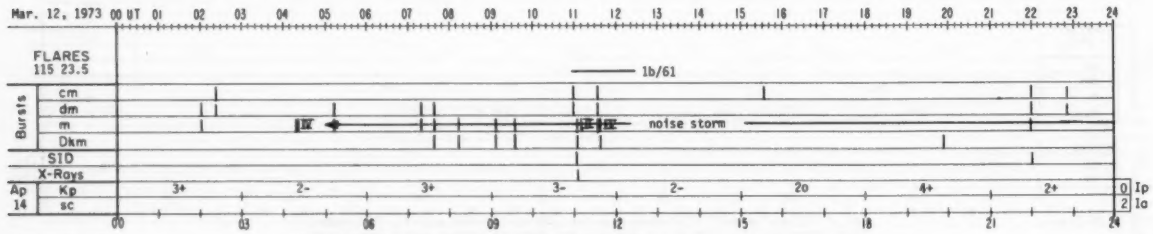
107 10 cm flux
67 Rz
CMP 12259 N13 (2) 19128 N13 (βp)4
12261 S16 (2) 19125 S18 (αp)4
19126 S16 (βf)3

One of ten most magnetically quiet days but with slight activity after 1800; aurora overhead over USSR at ϕ = 59° 0000-0110, 2000, 2100 and 2200; no coronal data 7 days later on W. limb.



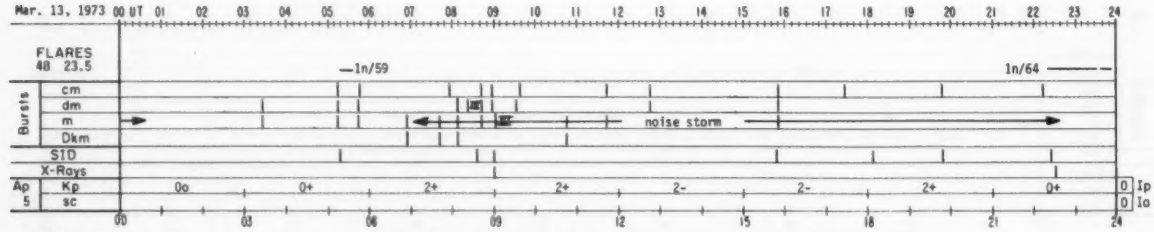
115 10 cm flux
69 Rz

One of ten most magnetically quiet days but with very slight activity throughout; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



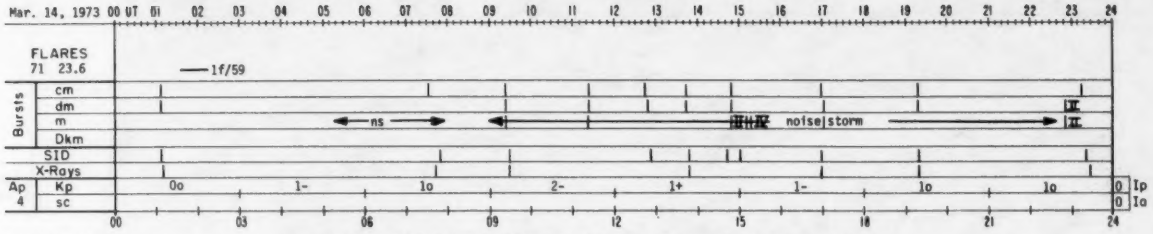
116 10 cm flux
92 Rz

Moderately br. green corona 7 days earlier on NE and SE limb.



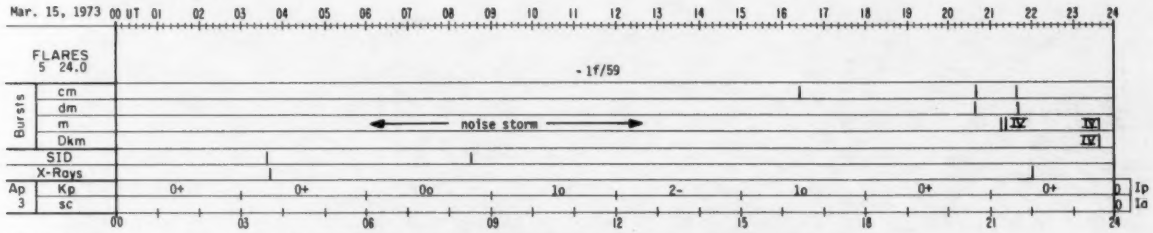
120 10 cm flux
79 Rz
CMP 12263 S07 19129 S07 (β)4
19131 S12 (βp)4 CMP March 14

One of five most magnetically quiet days but with very slight activity 0600-2100; moderately br. green corona 7 days later on SW limb.



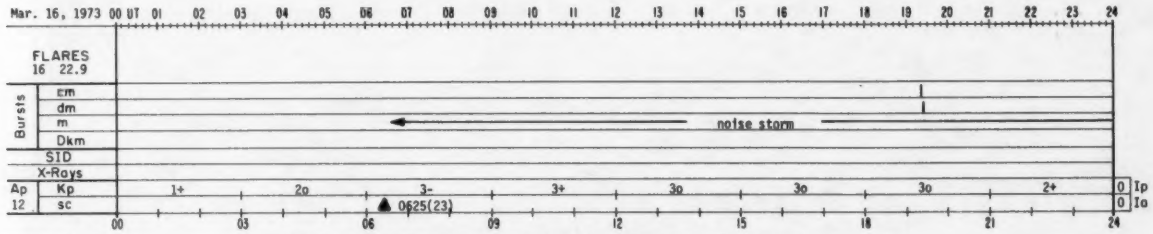
115 10 cm flux
78 Rz
CMP (12274) N09
(12271) N15
(12269) N07
12264 S11 19130 S12 (βp)5

One of five most magnetically quiet days; very br. green corona 7 days later on SW limb and moderately br. green corona 7 days later on NW limb.



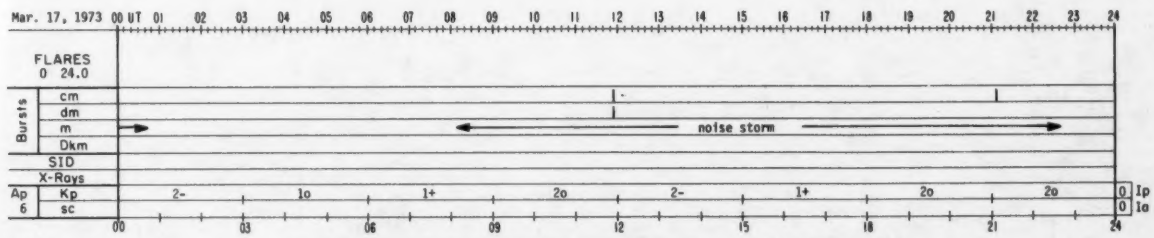
108 10 cm flux
73 Rz
CMP 12266 N07 19132 N04 (βp 2

One of five most magnetically quiet days; very br. green corona 7 days earlier on SE limb and moderately br. green corona 7 days earlier on NE limb.



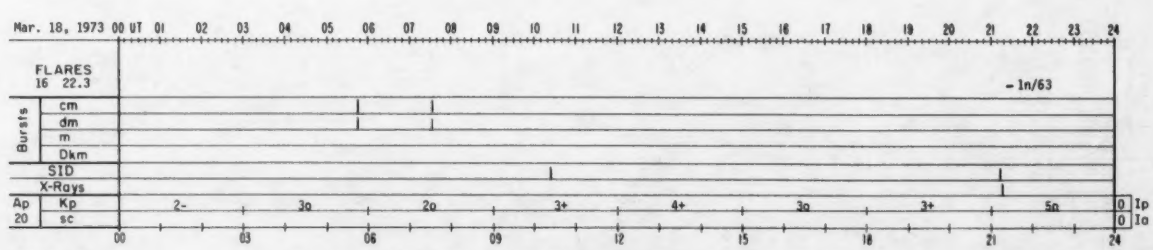
108 10 cm flux
64 Rz
CMP 12265 S16 (2)

Aurora overhead over USSR at ϕ = 57° 1300-1400; moderately br. green corona 7 days earlier on SE limb and 7 days later on SW limb.



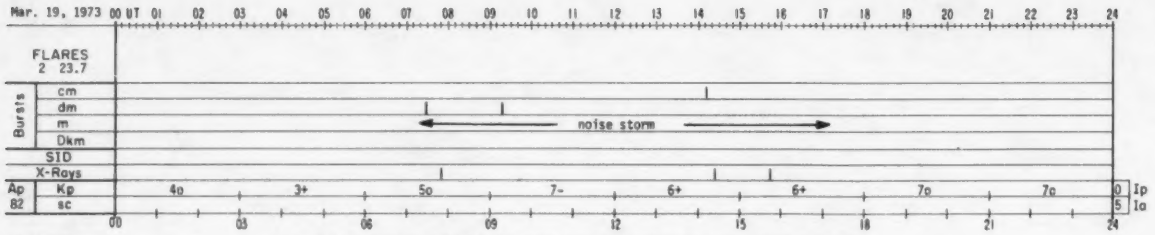
102 10 cm flux
52 Rz
CMP 12270 S11
(12272) N29
12267 N10

One of five most magnetically quiet days; very br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



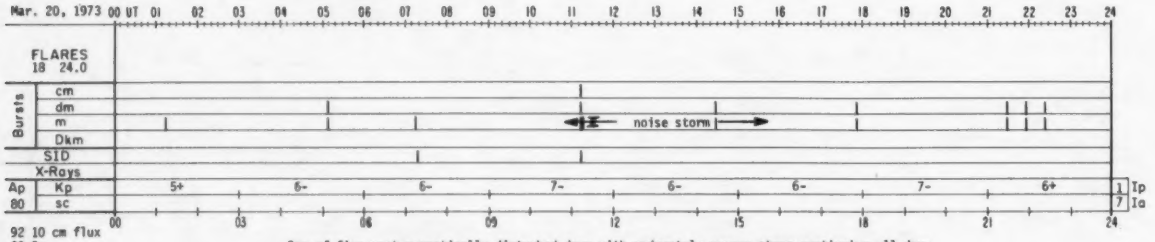
96 10 cm flux
44 Rz
CMP 12268 S10 (2) S10

Aurora overhead over USSR at ϕ = 58° 2100-2200; very br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



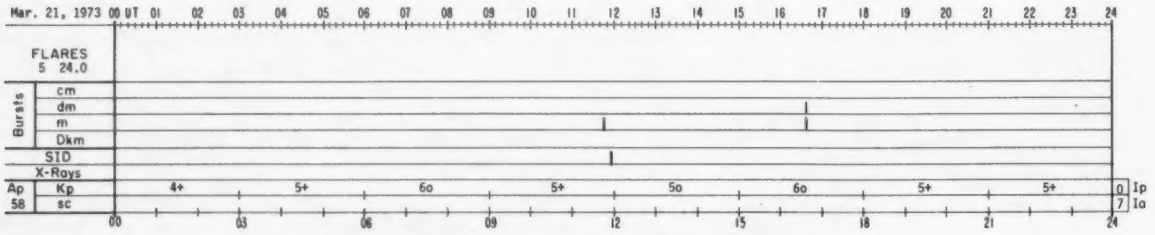
98 10 cm flux
34 Rz
CMP (12281) S05

One of five most magnetically disturbed days with moderately severe storm 0900-2400; aurora overhead over USSR at ϕ = 57° 1300-1400, 1600-1700, 1900 and 2200, ϕ = 53° 1400 and 1500, ϕ = 58° 1800, 2000-2100 and 2300-2400.



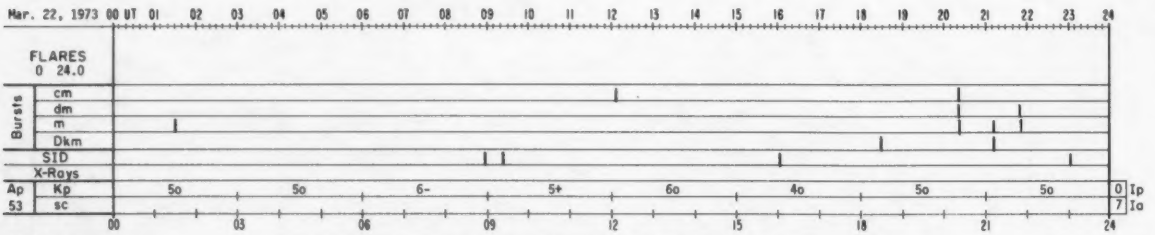
92 10 cm flux
23 Rz
CMP (12279) N07

One of five most magnetically disturbed days with moderately severe storm continuing all day; aurora overhead over USSR ϕ = 59° 1300-1400 and 1600, ϕ = 58° 1700-1800 and 1900 and ϕ = 57° 2000, auroral activity visible as glow over British Isles at ϕ = 59° 2100; no coronal data 7 days earlier on E. limb, nor 7 days later on SW limb.



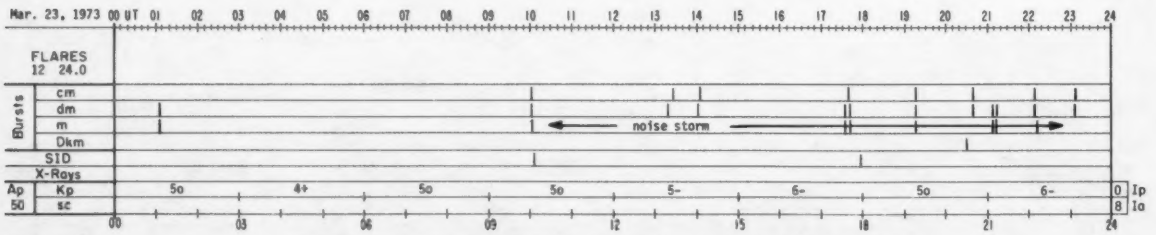
88 10 cm flux
20 Rz
CMP (12285) S15

One of five most magnetically disturbed days with moderate storm continuing; no coronal data 7 days earlier on E. limb.



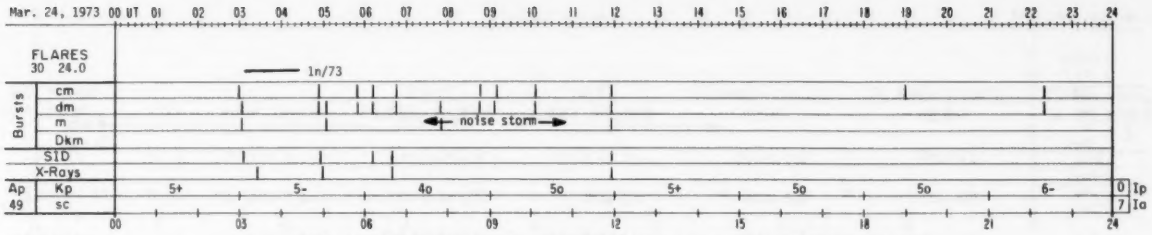
91 10 cm flux
30 Rz
CMP 12273 N16 (2) 19133 N14 (8p)5
12282 S14

One of five most magnetically disturbed days with moderate storm continuing; rayed auroral glow visible over W. Atlantic at ϕ = 58° 0000-0200 and at ϕ = 56° 0100, single ray visible over British Isles at ϕ = 59° 2053-2057; no coronal data 7 days earlier on E. limb.



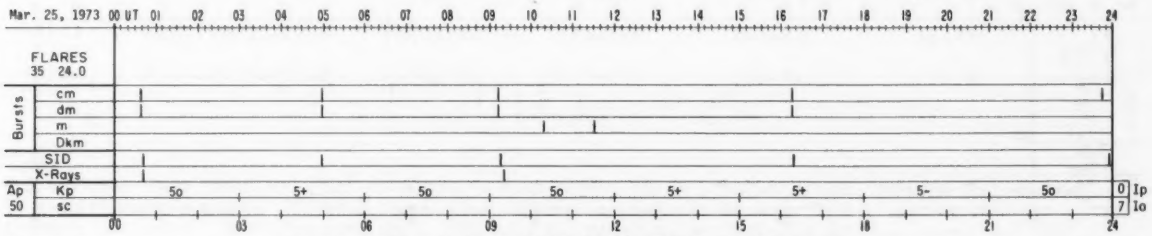
88 10 cm flux
37 Rz
CMP (12275) S10
12286 N17
(12276) S20

Homogeneous auroral arc was identified over W. Atlantic at ϕ = 58° (overhead 63° - 64°) and as a visible glow at ϕ = 56° 0100, auroral glow visible over British Isles at ϕ = 59° 2300, but mainly cloudy conditions over Atlantic; no coronal data 7 days later on W. limb.



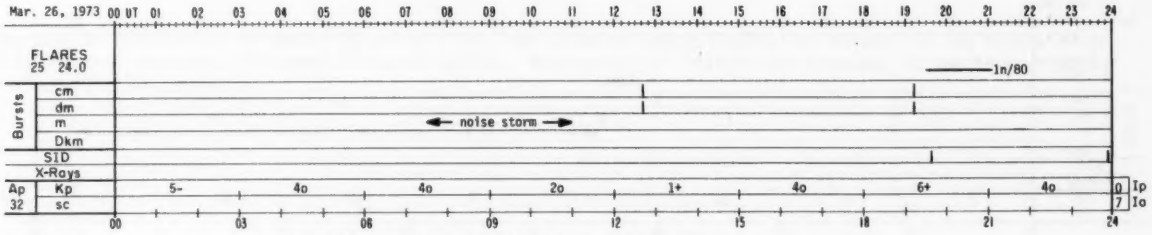
90 10 cm flux
29 Rz
CMP 12283 N12 19134 (αp)2

Auroral glow visible from aircraft over British Isles at ϕ = 59° 2256, multiple auroral arcs were seen over W. Atlantic at ϕ = 59° 2330 with rays to Zenith at ϕ = 59° and visible to ϕ = 54°; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



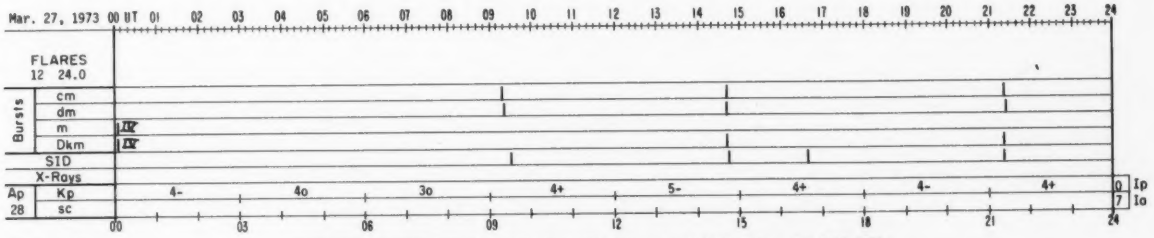
90 10 cm flux
27 Rz
CMP 12277 S09 (2)

One of five most magnetically disturbed days with continuation of moderate storm; aurora overhead over USSR at ϕ = 59° 1200-1500, auroral glow visible over British Isles at ϕ = 58° 2000-2400, becoming rayed 2050-2200; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



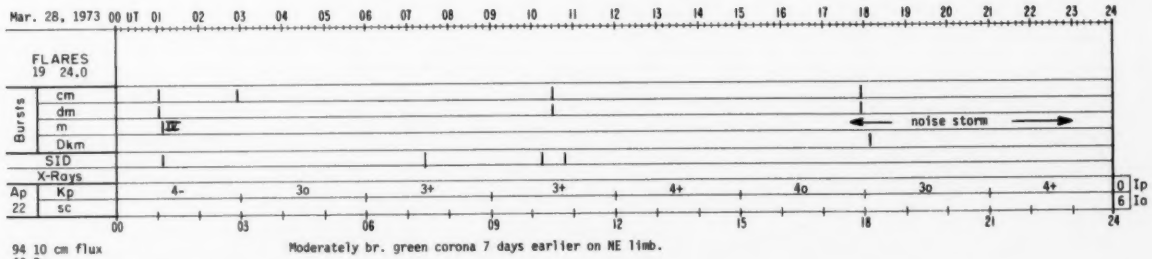
89 10 cm flux
23 Rz
CMP 12278 S17 (2)
12287 S30

Auroral glow visible over British Isles at ϕ = 59° 2045-0300; no coronal data 7 days later on W. limb.



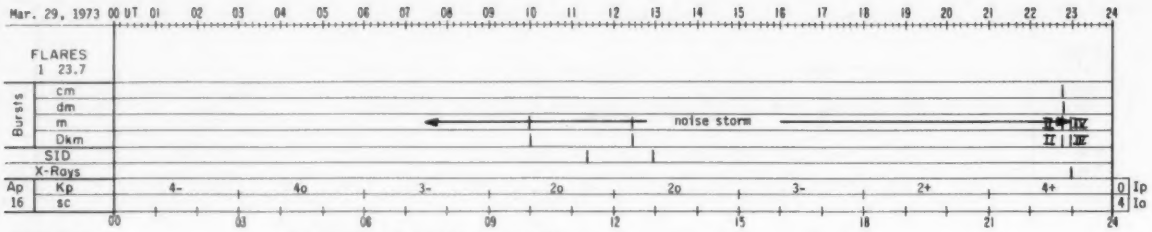
92 10 cm flux
32 Rz
CMP (12294) N02

Aurora overhead over USSR at ϕ = 54° 1300 and 1500, ϕ = 53° 1400 and ϕ = 58° 2300-2400, auroral glow visible over British Isles at ϕ = 59° 0000-0300 and 2250; no coronal data 7 days later on W. limb.



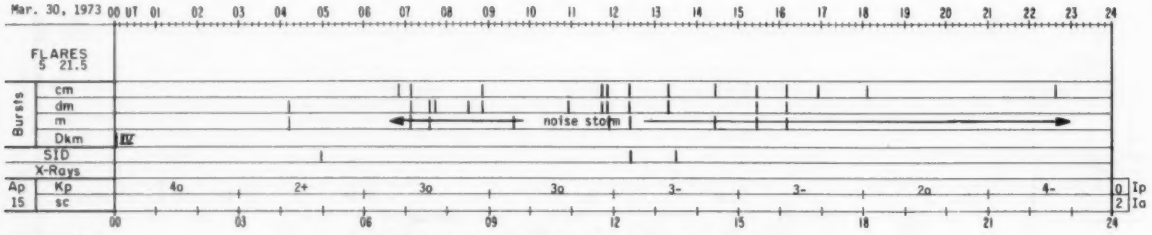
94 10 cm flux
43 Rz
CMP 12280 N07 (2) 19135 N07 αp
19136 N06 αf
(19141) N09 (βγ)3

Moderately br. green corona 7 days earlier on NE limb.



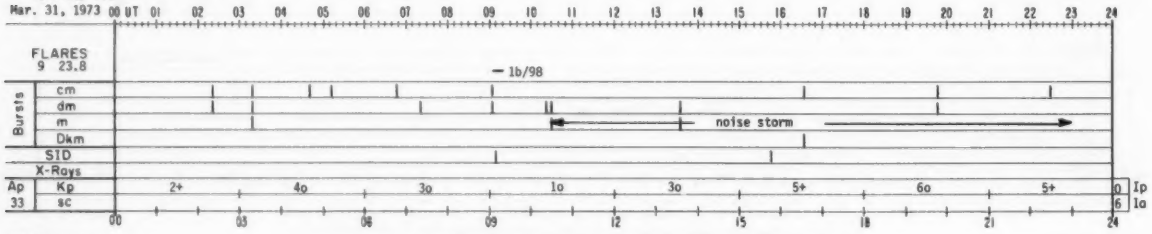
99 10 cm flux
46 Rz
CMP (12288) N11
(12292) S32

No coronal data 7 days later on W. limb.



103 10 cm flux
50 Rz
CMP 12296 N19
12291 S10 (19137) S14 βf
19140 S09 α CMP March 31
(19146) S05 β
(12301) S03

Auroral glow visible over British Isles at ϕ = 58° 2145-2300.



110 10 cm flux
56 Rz
CMP (12297) S10
(12303) S12

Auroral arc overhead at ϕ = 64°, visible over British Isles as glow at
ϕ = 57° 2215-2300; no coronal data 7 days earlier on E. limb.

REGIONAL FLARE INDEX

MARCH 1973

HC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
12246	N 8	73/03/01.4	73/02/22	73/03/01	308.88	38.61	22
12259	N14	73/03/10.6	73/03/13	73/03/15	44.67	14.89	13
12261	S17	73/03/10.6	73/03/05	73/03/14	204.53	20.45	16
12263	S 7	73/03/13.4	73/03/08	73/03/19	123.65	10.30	19
12264	S12	73/03/14.7	73/03/13	73/03/18	82.79	13.80	7
12273	N16	73/03/22.3	73/03/20	73/03/28	102.21	11.36	19
12280	N 7	73/03/28.2	73/03/21	73/04/01	69.31	5.78	13

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

MISCELLANEOUS DATA

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

98
Misc
Aug-Dec 72

COSMIC RAY INDICES

(Neutron Monitors)

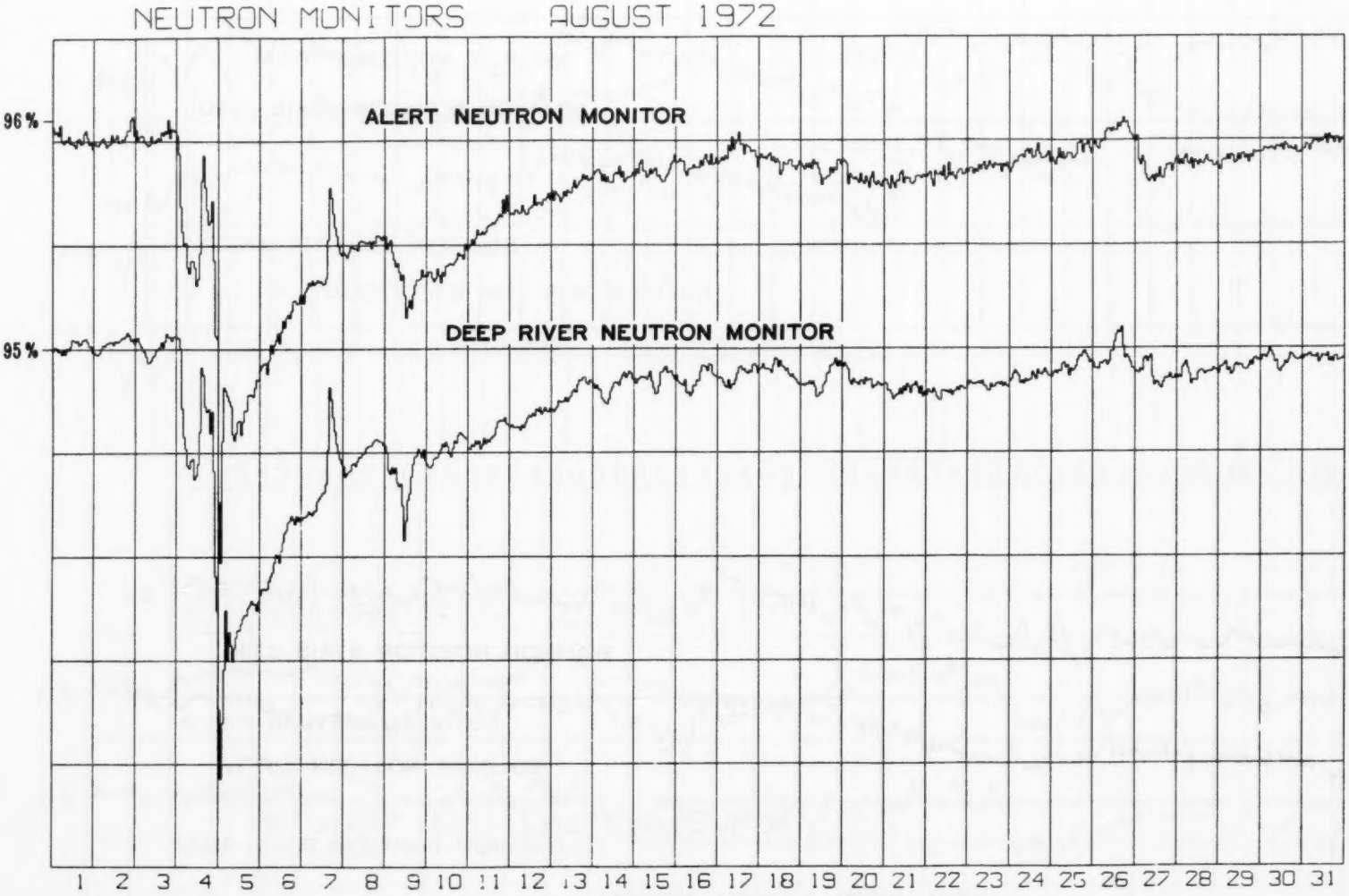
1972 DEEP RIVER

	August	September	October	November	December
	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR
1	6866.1	6832.7	7053.7	6459.7	7015.5
2	6876.5	6835.9	7007.9	6478.7	7002.5
3	6864.5	6841.4	6984.2	6578.5	7010.9
4	6549.5	6896.8	6971.4	6666.6	7016.5
5	5848.0	6883.8	6998.0	6808.1	7019.1
6	6152.8	6877.7	7018.1	6914.3	7005.9
7	6402.7	6831.4	7052.7	6939.7	7048.9
8	6487.8	6839.4	7047.5	6953.0	6967.4
9	6418.8	6869.2	7050.1	6953.2	6979.5
10	6506.6	6894.7	6998.6	6988.8	6986.1
11	6553.2	6870.3	6954.5	7016.9	7012.8
12	6614.3	6916.1	6949.0	7050.9	7014.0
13	6700.8	6905.8	6988.8	7058.6	6947.5
14	6726.8	6829.9	7005.5	7090.2	6947.2
15	6753.4	6869.8	7064.0	7101.9	6950.0
16	6750.6	6916.0	7103.6	7087.2	6919.5
17	6762.3	6916.7	7124.6	7091.5	6939.0
18	6780.5	6938.9	7143.7	7113.2	6952.4
19	6748.9	6975.8	6968.3	7135.8	6972.4
20	6745.0	7007.7	6933.7	7114.4	6990.8
21	6709.9	7026.7	6947.7	7112.4	7015.0
22	6704.0	7031.0	6950.7	7145.4	6993.9
23	6728.5	7005.0	6948.6	7133.5	6851.7
24	6757.1	7016.9	6980.4	7071.0	6865.6
25	6797.0	7018.6	7002.6	7021.2	6909.5
26	6829.9	7009.0	6955.2	6969.6	6945.0
27	6764.9	7027.5	6945.8	6966.9	6970.9
28	6768.3	7041.1	6919.8	6954.5	6927.0
29	6792.0	7080.8	6932.7	6966.3	6912.9
30	6814.3	7103.2	6888.7	6997.3	6882.8
31	6820.6		6751.0		6887.7
Average	6664.4	6937.0	6988.4	6964.7	6963.2

Deep River Super Neutron Monitor, Scaling Factor 300.

COSMIC RAY INDICES

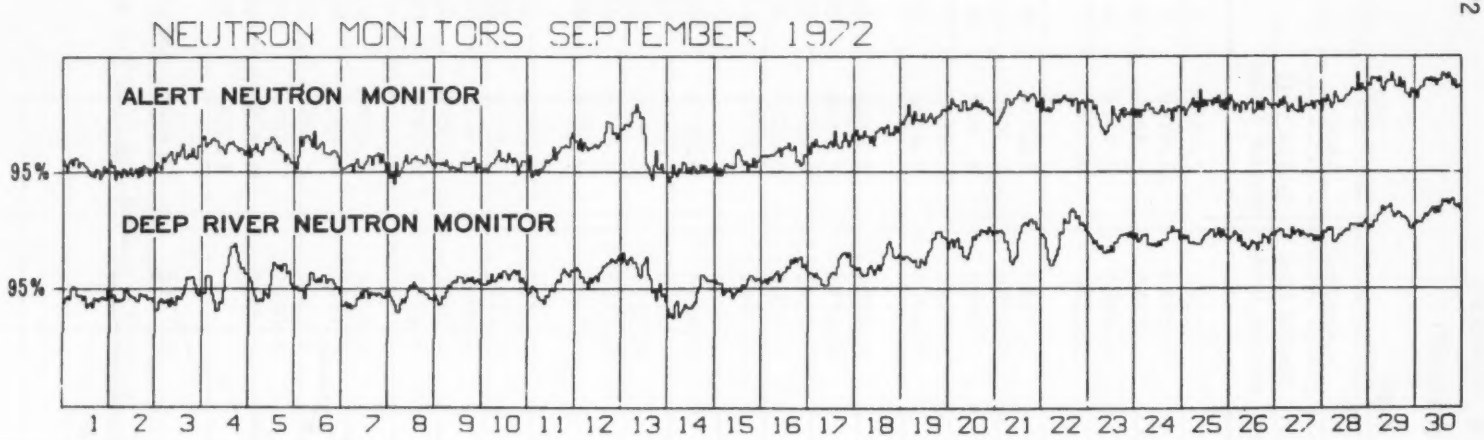
(Pressure Corrected Hourly Totals)

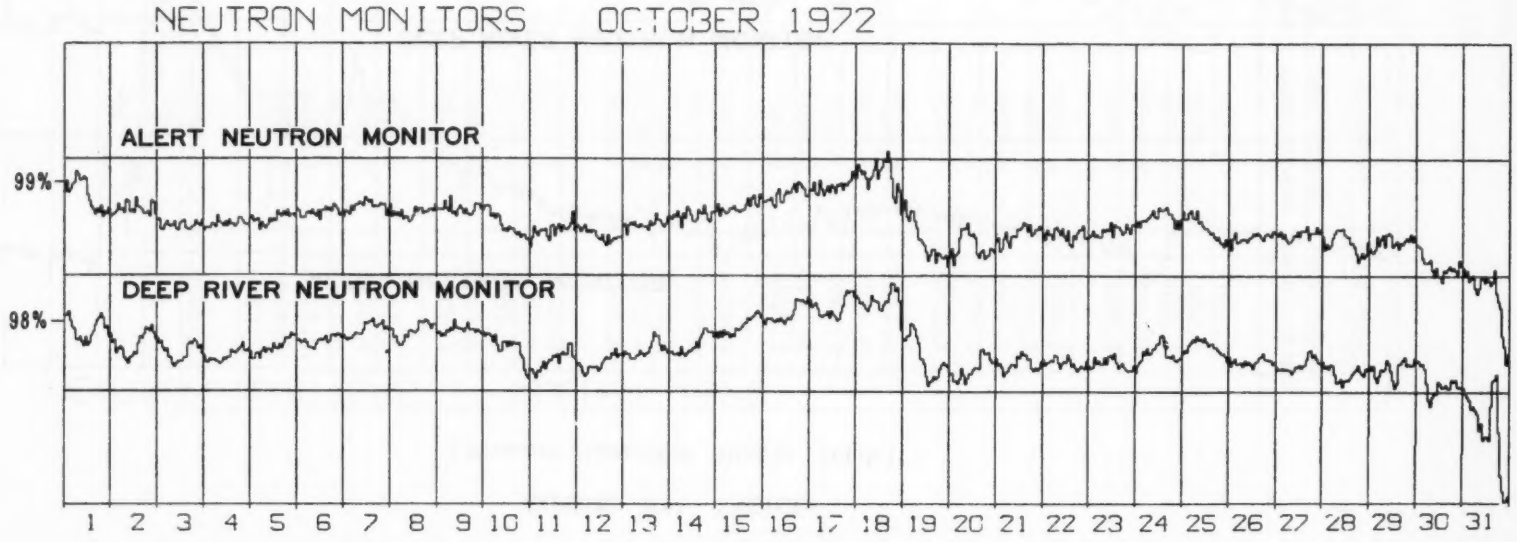


Note: The 100% rates used for this and following graphs are based on monthly averages for May 1965. For Deep River it is 2.147×10^6 counts/hour at 74.7 cm Hg and at Alert it is 7.766×10^5 counts/hour at 75.2 cm Hg.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

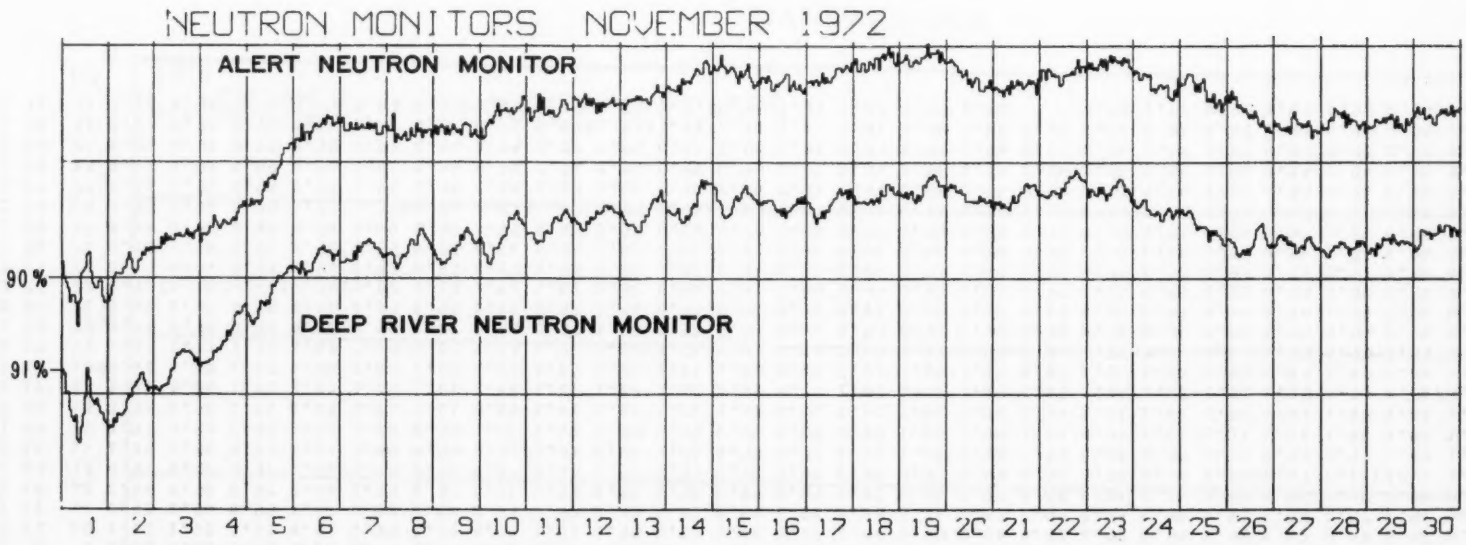


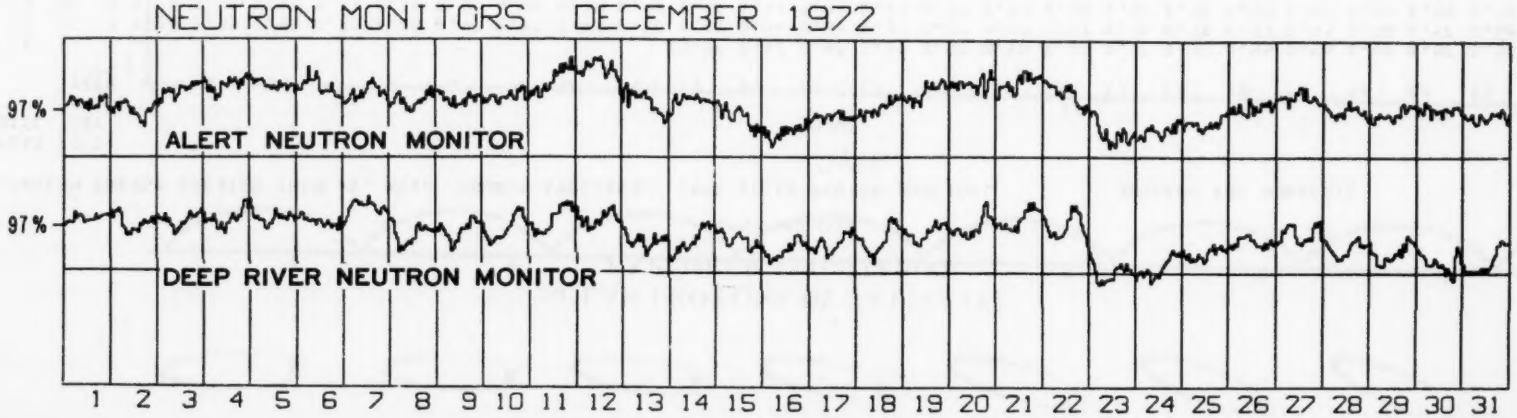


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)





SOLAR PROTONS BY SATELLITE
EXPLORER 43 (1971-19A)

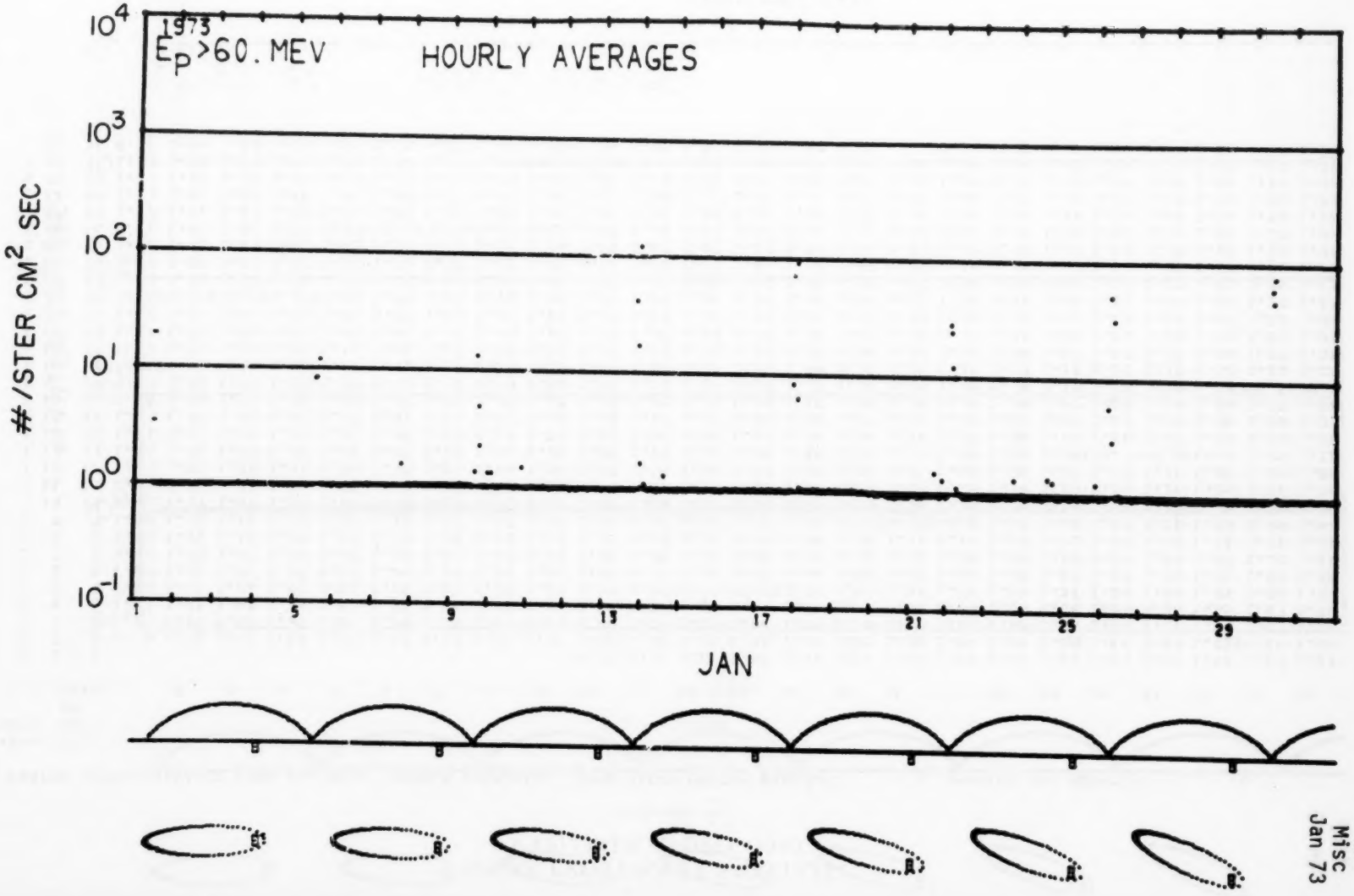
JANUARY 1973

PROTON ENERGY GREATER THAN 60. MEV. HOURLY AVERAGES. IMPI SOLAR PROTON MONITOR. JHU/APL AND NOAA/SEL

YEAR 1973 DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1 1	1										19.37	3.42	0.97	0.98	0.95	0.96	0.97	0.97	0.97	0.96	0.96	0.97	0.97	0.96	0.96
1 2	2	0.96	0.95	0.96	0.98	0.96	0.97	0.97	0.98	0.96	0.96	0.96	0.97	0.96	0.97	0.98	0.97	0.98	0.95	0.95	0.98	0.96	0.97	0.98	0.97
1 3	3	0.98	0.98	0.98	0.98	0.98	0.97	0.98	0.99	0.97	0.97	0.98	0.98	0.99	0.97	0.98	0.98	0.97	0.98	0.99	0.97	0.99	0.99	0.98	0.97
1 4	4	0.99	0.97	0.98	0.97	0.97	0.97	0.98	0.98	0.97	0.97	0.96	0.97	0.97	0.96	0.98	0.99	0.96	0.97	0.97	0.96	0.98	0.98	0.98	0.96
1 5	5	0.99	0.99	0.97	0.98	0.99	0.98	0.96	0.97	0.97	0.97	0.97	8.26	8.351	1.99	0.99	0.98	0.99	0.98	0.97	0.98	0.99	0.96	0.97	0.99
1 6	6	0.98	0.97	0.97	0.97	0.97	0.98	1.00	0.97	0.98	0.98	0.98	1.00	0.99	1.00	0.98	1.00	1.00	0.99	0.99	1.01	0.98	1.00	0.99	1.01
1 7	7	1.00	0.99	1.00	0.99	1.00	1.00	1.00	0.99	1.01	1.00	1.01	1.00	1.00	0.99	1.01	1.01	1.53	1.01	1.00	1.01	1.02	1.02	1.01	1.00
1 8	8	1.01	1.01	1.02	1.00	1.01	1.01	1.01	1.01	1.02	1.01	1.03	1.00	1.03	1.03	1.00	1.03	1.01	1.02	1.03	1.02	1.01	1.02	1.01	1.01
1 9	9	1.01	1.01	1.02	1.02	0.99	1.04	1.02	1.02	1.02	1.03	1.03	1.01	1.01	1.01	1.32	13.35	4.90	2.24	1.00	0.99	1.00	1.01	0.98	1.31
1 10	10	1.32	1.00	1.00	0.98	0.99	0.98	0.99	1.00	0.99	0.99	1.00	1.00	0.99	0.99	0.98	0.98	0.99	0.99	0.99	1.47	0.98	0.98	0.99	0.99
1 11	11	0.98	1.00	0.99	1.00	0.98	0.98	0.99	0.99	0.98	1.00	0.98	0.98	0.98	0.96	0.97	0.97	0.98	0.98	0.98	0.97	0.97	0.97	0.99	0.99
1 12	12	0.98	0.96	0.97	0.98	0.99	0.97	0.96	0.98	0.98	0.97	0.99	0.99	0.97	0.96	0.97	0.98	0.98	0.98	0.98	0.98	0.97	0.98	0.97	0.98
1 13	13	0.97	0.97	0.97	0.96	0.98	0.98	0.97	0.98	0.97	0.99	0.98	0.98	0.97	0.97	0.98	0.98	0.99	0.98	0.99	41.87	17.11	22.1	1.65	1.02
1 14	14	1.09	1.04	0.99	0.98	0.99	0.99	0.98	0.98	0.95	1.00	0.99	0.98	1.32	1.00	0.98	0.99	0.98	0.98	1.00	0.99	0.97	0.99	1.00	0.99
1 15	15	0.99	0.98	0.99	0.98	1.00	0.99	1.00	1.00	0.99	0.99	0.99	0.99	0.99	1.00	0.99	1.00	0.99	1.01	1.01	1.00	1.00	0.98	1.01	1.01
1 16	16	0.98	0.98	1.01	1.00	1.01	1.01	0.99	1.00	1.00	1.01	1.03	1.01	1.01	1.01	1.00	0.99	1.01	1.01	1.02	1.01	1.00	1.03	1.02	1.00
1 17	17	1.00	1.00	1.01	1.00	1.00	1.01	1.00	1.02	1.00	1.02	1.01	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.01	1.00	1.01	1.01	73.32	8.37
1 18	18	93.40	5.20	1.07	1.05	1.03	1.02	1.02	1.02	1.01	1.01	1.03	1.04	1.01	1.00	1.04	1.02	1.01	1.03	1.03	1.00	1.03	1.04	1.03	1.02
1 19	19	1.02	1.03	1.01	1.02	1.03	1.02	1.03	1.02	1.02	1.02	1.03	1.04	1.03	1.03	1.02	1.01	1.00	0.99	1.01	0.99	0.99	0.99	0.98	0.97
1 20	20	0.99	0.98	0.96	0.97	0.95	0.97	0.98	0.97	0.96	0.95	0.93	0.94	0.93	0.93	0.92	0.94	0.96	0.94	0.95	0.94	0.94	0.95	0.94	0.94
1 21	21	0.95	0.97	0.95	0.96	0.93	0.95	0.95	0.93	0.96	0.95	0.96	0.96	0.97	0.96	0.95	1.49	0.96	0.95	0.94	0.94	1.30	0.96	0.95	0.95
1 22	22	0.96	28.68	24.48	12.36	10.02	1.13	1.02	1.01	0.97	0.94	0.95	0.94	0.94	0.93	0.95	0.95	0.95	0.95	0.96	0.93	0.96	0.94	0.94	0.95
1 23	23	0.93	0.94	0.93	0.94	0.93	0.93	0.93	0.95	0.93	0.95	0.97	0.96	0.96	0.93	0.95	0.96	0.95	1.33	0.95	0.96	0.97	0.95	0.99	0.97
1 24	24	0.92	0.95	0.94	0.96	0.95	0.96	0.94	0.94	0.95	0.94	0.92	0.94	0.96	0.96	1.36	0.95	0.95	1.28	0.95	0.94	0.94	0.94	0.95	0.94
1 25	25	0.95	0.96	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.94	0.95	0.95	0.96	0.94	0.95	0.94	0.95	0.95	0.96	0.95	1.26	0.95	0.94	0.95
1 26	26	0.95	0.96	0.96	0.95	5.715	1.61	2.923	1.85	0.99	0.96	1.03	0.97	0.94	0.95	0.96	0.97	0.96	0.96	0.94	0.93	0.96	0.96	0.96	0.95
1 27	27	0.96	0.95	0.95	0.95	0.94	0.95	0.95	0.93	0.96	0.94	0.94	0.94	0.94	0.95	0.94	0.94	0.93	0.94	0.95	0.94	0.94	0.95	0.92	0.94
1 28	28	0.95	0.93	0.95	0.96	0.95	0.94	0.95	0.94	0.94	0.95	0.95	0.95	0.94	0.96	0.94	0.94	0.95	0.94	0.96	0.94	0.94	0.95	0.95	0.96
1 29	29	0.96	0.95	0.95	0.95	0.96	0.94	0.95	0.97	0.94	0.97	0.98	0.95	0.94	0.95	0.96	0.96	0.94	0.95	0.95	0.97	0.95	0.97	0.96	0.97
1 30	30	0.96	0.97	0.96	0.94	0.97	0.97	0.96	0.976	1.534	7.397	7.08	1.02	0.97	0.96	0.96	0.98	0.97	0.96	0.98	0.98	0.98	0.98	0.97	0.97
1 31	31	0.97	0.98	0.96	0.98	0.98	0.97	0.98	0.99	1.00	0.99	0.98	0.98	0.98	0.99	0.99		0.99	0.97	0.98	0.98	0.99	0.99	0.98	0.98

SOLAR PROTONS BY SATELLITE
EXPLORER 43 (1971–19A)

JANUARY 1973



SOLAR PROTONS BY SATELLITE
EXPLORER 43 (1971-19A)

JANUARY 1973

PROTON ENERGY GREATER THAN 30. MEV. HOURLY AVERAGES. IMPI SOLAR PROTON MONITOR. JHU/APL AND NOAA/SEL

YEAR	DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1973	1	1										34.22	5.11	1.07	1.05	1.03	1.04	1.04	1.03	1.03	1.04	1.03	1.05	1.05	1.03	1.05
1	2	2	1.04	1.03	1.02	1.04	1.05	1.03	1.05	1.06	1.05	1.06	1.06	1.05	1.04	1.06	1.05	1.06	1.04	1.05	1.05	1.05	1.03	1.05	1.04	1.04
1	3	3	1.05	1.05	1.05	1.05	1.07	1.05	1.05	1.05	1.04	1.04	1.07	1.06	1.04	1.05	1.08	1.04	1.06	1.07	1.06	1.04	1.06	1.06	1.05	1.06
1	4	4	1.05	1.07	1.05	1.05	1.03	1.04	1.05	1.05	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.03	1.04	1.06	1.06	1.06	1.06	1.05	1.03	1.04
1	5	5	1.04	1.04	1.04	1.05	1.04	1.05	1.04	1.05	1.03	1.05	1.05	24.57	129.72	3.99	1.04	1.04	1.06	1.06	1.07	1.06	1.06	1.05	1.05	1.04
1	6	6	1.05	1.03	1.05	1.05	1.07	1.06	1.06	1.08	1.06	1.05	1.05	1.06	1.05	1.06	1.04	1.07	1.06	1.05	1.07	1.07	1.06	1.06	1.07	1.06
1	7	7	1.04	1.05	1.07	1.06	1.07	1.06	1.07	1.07	1.08	1.06	1.09	1.08	1.08	1.06	1.10	1.10	1.66	1.07	1.09	1.07	1.09	1.07	1.10	1.10
1	8	8	1.08	1.09	1.10	1.09	1.09	1.09	1.08	1.08	1.10	1.10	1.09	1.08	1.09	1.09	1.10	1.11	1.10	1.10	1.11	1.08	1.10	1.10	1.08	1.11
1	9	9	1.08	1.10	1.10	1.13	1.08	1.11	1.11	1.07	1.09	1.09	1.09	1.11	1.10	1.09	1.55	79.63	143.6	3.12	1.08	1.07	1.08	1.09	1.06	1.44
1	10	10	1.41	1.09	1.07	1.06	1.05	1.06	1.08	1.05	1.07	1.06	1.06	1.06	1.08	1.05	1.09	1.06	1.06	1.06	1.06	1.61	1.05	1.05	1.06	1.05
1	11	11	1.05	1.05	1.07	1.06	1.06	1.07	1.06	1.06	1.08	1.06	1.07	1.05	1.05	1.05	1.06	1.07	1.05	1.06	1.04	1.04	1.06	1.04	1.05	1.05
1	12	12	1.05	1.06	1.06	1.07	1.06	1.05	1.05	1.04	1.04	1.05	1.05	1.04	1.07	1.05	1.06	1.05	1.06	1.06	1.04	1.05	1.06	1.06	1.04	1.05
1	13	13	1.04	1.06	1.05	1.06	1.06	1.05	1.05	1.04	1.06	1.05	1.05	1.04	1.05	1.05	1.05	1.05	1.05	1.06	1.05	130.7	147.1	462.8	2.20	1.12
1	14	14	1.21	1.15	1.05	1.06	1.07	1.04	1.06	1.05	1.07	1.05	1.06	1.05	1.42	1.06	1.06	1.08	1.07	1.08	1.06	1.06	1.07	1.06	1.06	1.04
1	15	15	1.09	1.05	1.08	1.08	1.07	1.07	1.07	1.07	1.06	1.08	1.07	1.05	1.09	1.06	1.07	1.07	1.07	1.06	1.07	1.08	1.08	1.06	1.08	1.07
1	16	16	1.08	1.08	1.07	1.08	1.08	1.07	1.07	1.09	1.07	1.08	1.08	1.09	1.08	1.10	1.08	1.08	1.10	1.08	1.07	1.08	1.08	1.09	1.09	1.08
1	17	17	1.09	1.09	1.08	1.09	1.07	1.09	1.10	1.09	1.08	1.08	1.10	1.09	1.09	1.10	1.10	1.08	1.08	1.10	1.12	1.10	1.09	1.08	334.5	109.4
1	18	18	383.4	12.44	1.21	1.13	1.13	1.11	1.10	1.10	1.09	1.11	1.08	1.10	1.10	1.09	1.10	1.11	1.08	1.13	1.10	1.11	1.10	1.12	1.11	1.11
1	19	19	1.12	1.10	1.10	1.10	1.12	1.11	1.10	1.09	1.11	1.11	1.11	1.11	1.11	1.10	1.10	1.07	1.09	1.08	1.07	1.07	1.05	1.06	1.05	1.08
1	20	20	1.07	1.05	1.06	1.04	1.04	1.03	1.02	1.04	1.03	1.02	1.02	1.03	1.02	1.02	1.01	1.00	1.00	1.01	1.00	1.01	1.03	1.01	1.03	1.02
1	21	21	1.02	1.02	1.02	1.01	1.01	1.02	1.02	1.01	1.00	1.03	1.03	1.01	1.02	1.01	1.02	1.63	1.02	1.02	1.02	1.03	1.40	1.02	1.02	1.02
1	22	22	1.06	59.00	104.4	84.87	17.82	1.35	1.14	1.10	1.05	1.01	1.02	1.03	1.02	1.02	1.01	1.02	1.02	1.02	1.01	1.01	1.02	1.03	1.02	1.03
1	23	23	1.02	1.02	1.02	1.01	1.02	1.03	1.02	1.03	1.01	1.02	1.03	1.02	1.02	1.02	1.02	1.03	1.00	1.44	1.01	1.02	1.02	1.01	0.99	1.01
1	24	24	1.02	1.03	1.02	1.02	1.03	1.01	0.98	1.02	1.03	1.01	1.03	1.02	1.01	1.02	1.47	1.05	1.01	1.40	1.03	1.02	1.02	1.02	1.01	1.02
1	25	25	1.02	1.02	1.03	1.01	1.02	1.01	1.02	1.03	1.04	1.01	1.03	1.02	1.02	1.01	1.03	1.03	1.02	0.99	1.03	1.01	1.40	1.02	1.02	1.02
1	26	26	1.01	1.01	1.02	1.01	9.07	145.1	59.03	63.22	1.08	1.05	1.16	1.04	1.01	1.02	1.03	1.02	1.02	1.02	1.03	1.01	1.01	1.03	1.03	1.02
1	27	27	1.02	1.01	1.03	1.00	1.00	1.02	1.02	1.03	1.02	1.01	1.01	1.00	1.01	1.03	1.02	1.00	1.00	1.00	1.00	1.03	1.00	1.01	0.98	1.00
1	28	28	1.01	1.01	1.02	1.00	1.02	1.02	0.99	1.01	1.00	1.01	1.00	1.01	1.02	1.01	1.02	1.01	1.00	1.01	1.02	1.02	1.02	1.01	1.02	1.02
1	29	29	1.01	1.02	1.02	1.02	1.04	1.02	1.04	1.03	1.02	1.03	1.03	1.01	1.03	1.01	1.03	1.01	1.02	1.03	1.03	1.04	1.02	1.02	1.04	1.02
1	30	30	1.01	1.03	1.03	1.01	1.05	1.03	1.02	1.04	204.2	297.0	47	0.4	1.17	1.03	1.07	1.04	1.04	1.04	1.04	1.05	1.04	1.05	1.03	1.06
1	31	31	1.05	1.04	1.03	1.06	1.05	1.06	1.07	1.05	1.03	1.05	1.07	1.08	1.06	1.07	1.06		1.04	1.05	1.07	1.07	1.06	1.06	1.07	1.06

SOLAR PROTONS BY SATELLITE
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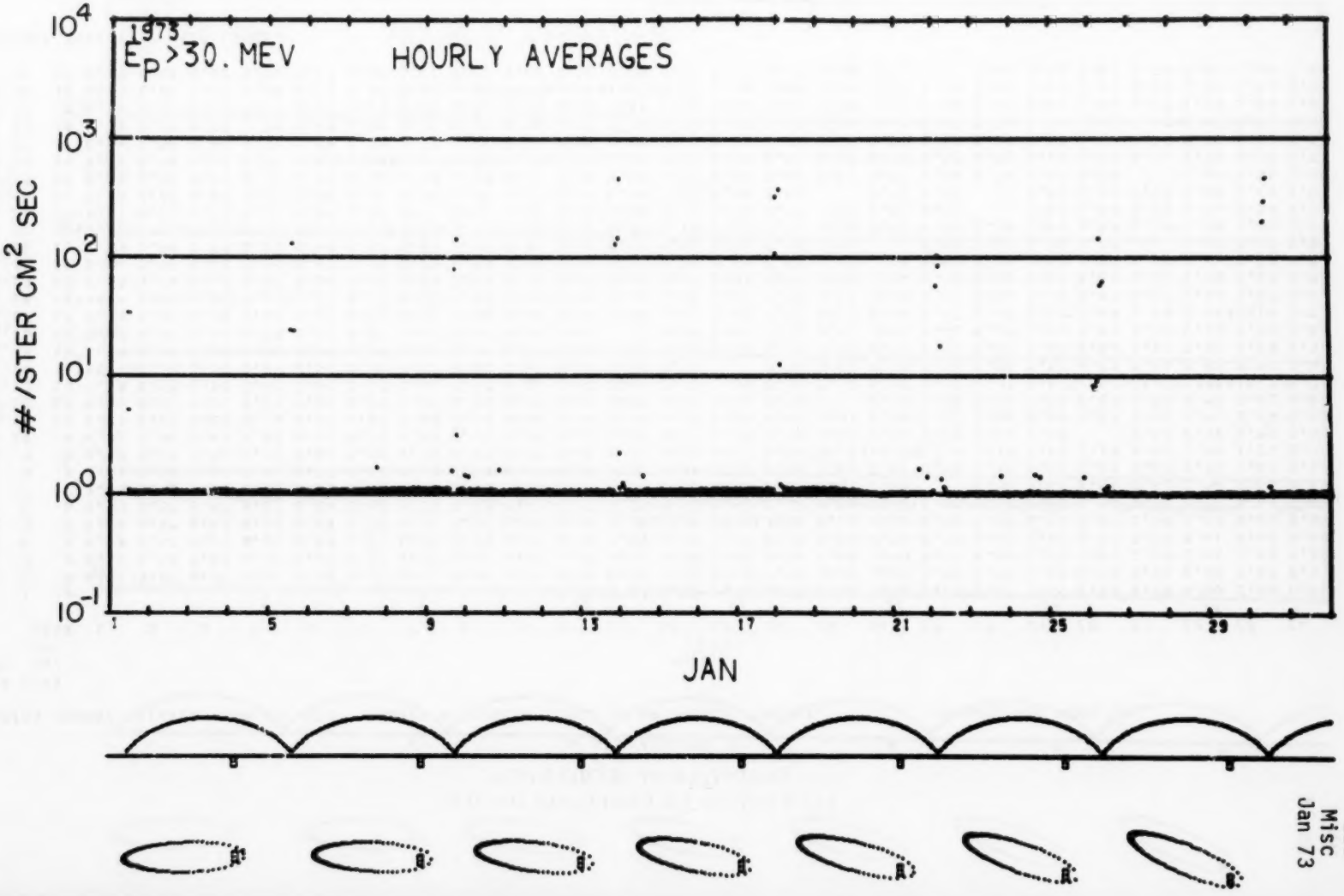

SOLAR PROTONS BY SATELLITE
EXPLORER 43 (1971-19A)

JANUARY 1973

PROTON ENERGY GREATER THAN 10. MEV. HOURLY AVERAGES. IMPI SOLAR PROTON MONITOR. JHU/APL AND NOAA/SEL

YEAR 1973

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1 1	1										27288	3403	4.99	1.32	1.75	0.72	0.64	0.61	0.57	0.59	0.58	0.59	0.60	0.56	0.58
1 2	2	0.58	0.57	0.55	0.58	0.58	0.58	0.61	0.54	0.58	0.59	0.60	0.58	0.58	0.62	0.60	0.60	0.60	0.59	0.60	0.58	0.61	0.58	0.60	0.64
1 3	3	0.64	0.57	0.58	0.60	0.60	0.62	0.59	0.62	0.59	0.59	0.61	0.58	0.65	0.62	0.62	0.63	0.57	0.62	0.59	0.61	0.60	0.60	0.61	0.60
1 4	4	0.58	0.62	0.61	0.60	0.58	0.60	0.56	0.59	0.57	0.58	0.59	0.58	0.57	0.55	0.49	0.58	0.59	0.63	0.60	0.57	0.59	0.61	0.62	0.60
1 5	5	0.56	0.57	0.63	0.60	0.59	0.60	0.57	0.55	0.59	0.59	0.60	10638	55941	7625	0.72	0.62	0.59	0.85	0.63	0.59	0.59	0.63	0.61	0.64
1 6	6	0.59	0.57	0.57	0.61	0.64	0.60	0.59	0.59	0.60	0.63	0.59	0.62	0.60	0.62	0.58	0.63	0.60	0.62	0.60	0.62	0.61	0.57	0.61	0.65
1 7	7	0.60	0.60	0.62	0.62	0.61	0.62	0.61	0.60	0.56	0.62	0.67	0.58	0.64	0.66	0.62	0.68		0.56	0.62	0.64	0.63	0.64	0.58	0.65
1 8	8	0.61	0.58	0.60	0.64	0.59	0.63	0.63	0.69	0.59	0.61	0.60	0.57	0.62	0.64	0.62	0.60	0.58	0.62	0.66	0.61	0.63	0.58	0.61	0.62
1 9	9	0.62	0.67	0.64	0.62	0.64	0.68	0.61	0.65	0.59	0.61	0.62	0.55	0.67	0.64	395.0	160	599	7.8	1719	1.40	2.18	1.07	1.80	1.24	2.35
1 10	10	2.32	0.64	0.61	0.63	0.67	0.62	0.62	0.61	0.62	0.61	0.57	0.59	0.59	0.58	0.61	0.63	0.59	0.64	0.60		0.62	0.58	0.59	0.60
1 11	11	0.56	0.68	0.69	0.64	0.67	0.67	0.68	0.66	0.66	0.64	0.64	0.65	0.65	0.63	0.61	0.59	0.62	0.66	0.66	0.60	0.60	0.61	0.64	0.63
1 12	12	0.61	0.67	0.68	0.54	0.66	0.69	0.65	0.59	0.63	0.63	0.56	0.62	0.64	0.58		0.65	0.60	0.61	0.58	0.60	0.59	0.59	0.61	0.60
1 13	13	0.68	0.59	0.58	0.62	0.61	0.63	0.61	0.62	0.62	0.63	0.63	0.59	0.66	0.60	0.62	0.67	0.62	0.63	0.675	385	216	143	*****	815.2	36.71
1 14	14	115.4	61.52	3.50	0.69	0.58	0.60	0.62	0.60	0.61	0.63	0.60	0.59		0.59	0.60	0.66	0.65	0.64	0.57	0.61	0.66	0.60	0.61	0.61
1 15	15	0.54	0.59	0.63	0.64	0.63	0.60	0.62	0.64	0.57	0.56	0.64	0.60	0.63	0.61	0.60	0.63	0.61	0.63	0.63	0.63	0.61	0.65	0.59	0.57
1 16	16	0.62	0.64	0.64	0.59	0.62	0.57	0.61	0.57	0.62	0.60	0.56	0.66	0.62	0.61	0.61	0.61	0.61	0.63	0.64	0.66	0.60	0.63	0.61	0.60
1 17	17	0.58	0.63	0.66	0.62	0.62	0.63	0.62	0.62	0.64	0.65	0.60	0.63	0.63	0.66	0.61	0.60	0.57	0.62	0.58	0.66	0.59	0.64	85616	5771
1 18	18	*****	800	441.6	327.1	612.16	3.27	0.64	0.63	0.61	0.66	0.63	0.62	0.63	0.65	0.67	0.60	0.62	0.64	0.58	0.65	0.63	0.60	0.67	0.60
1 19	19	0.65	0.64	0.63	0.59	0.66	0.65	0.58	0.60	0.59	0.67	0.56	0.57	0.64	0.67	0.59	0.64	0.60	0.60	0.60	0.60	0.63	0.59	0.62	0.59
1 20	20	0.64	0.59	0.63	0.61	0.63	0.59	0.58	0.59	0.59	0.59	0.55	0.55	0.61	0.57	0.58	0.56	0.58	0.58	0.57	0.62	0.55	0.61	0.62	0.57
1 21	21	0.55	0.59	0.59	0.60	0.59	0.52	0.51	0.60	0.60	0.61	0.60	0.61	0.58	0.55	0.54		0.57	0.63	0.78	0.77		1.10	0.60	0.59
1 22	22	15.5	24	30	62	81	87	107	111	314	1174.4	63.9	361.7	217.66	0.60	0.58	0.70	0.60	0.56	0.59	0.61	0.57	0.60	0.63	0.58	0.53	0.62	0.60	0.62
1 23	23	0.63	0.56	0.58	0.60	0.57	0.57	0.54	0.59	0.60	0.63	0.56	0.60	0.54	0.58	0.57	0.61	0.56		0.57	0.62	0.59	0.54	0.38	0.53
1 24	24	0.54	0.61	0.59	0.62	0.58	0.61	0.56	0.57	0.56	0.60	0.55	0.59	0.54	0.61		0.55	0.58		0.59	0.58	0.56	0.58	0.59	0.53
1 25	25	0.61	0.56	0.54	0.56	0.60	0.60	0.53	0.58	0.55	0.58	0.59	0.55	0.61	0.63	0.57	0.57	0.56	0.54	0.60	0.59		0.67	0.56	0.57
1 26	26	0.62	0.76	1.40	0.79	728	871	1009	517.4	461	3046.0	511.7	411	3.7	7.99	0.82	0.64	0.61	0.63	0.62	0.61	0.60	0.53	0.61	0.59	0.55	0.59
1 27	27	0.56	0.55	0.60	0.57	0.58	0.58	0.57	0.61	0.61	0.58	0.59	0.64	0.58	0.53	0.58	0.57	0.60	0.58	0.58	0.57	0.59	0.59	0.63	0.52
1 28	28	0.60	0.58	0.55	0.56	0.59	0.58	0.55	0.57	0.56	0.55	0.59	0.54	0.57	0.60	0.58	0.61	0.57	0.56	0.54	0.61	0.58	0.62	0.59	0.60
1 29	29	0.55	0.58	0.56	0.59	0.58	0.59	0.58	0.56	0.56	0.53	0.58	0.62	0.57	0.61	0.58	0.55	0.56	0.59	0.56	0.56	0.57	0.59	0.64	0.69
1 30	30	0.59	0.81	0.86	0.59	0.59	0.62	0.95	1.06	758	984	907	681	915	63.03	2.46	3.09	2.92	1.64	1.29	0.61	0.63	0.61	0.61	0.55	0.61	0.61
1 31	31	0.59	0.63	0.60	0.56	0.63	0.60	0.61	0.57	0.60	0.60	0.58	0.64	0.63	0.62	0.60	0.71		0.64	0.61	0.62	0.59	0.60	0.64	0.60

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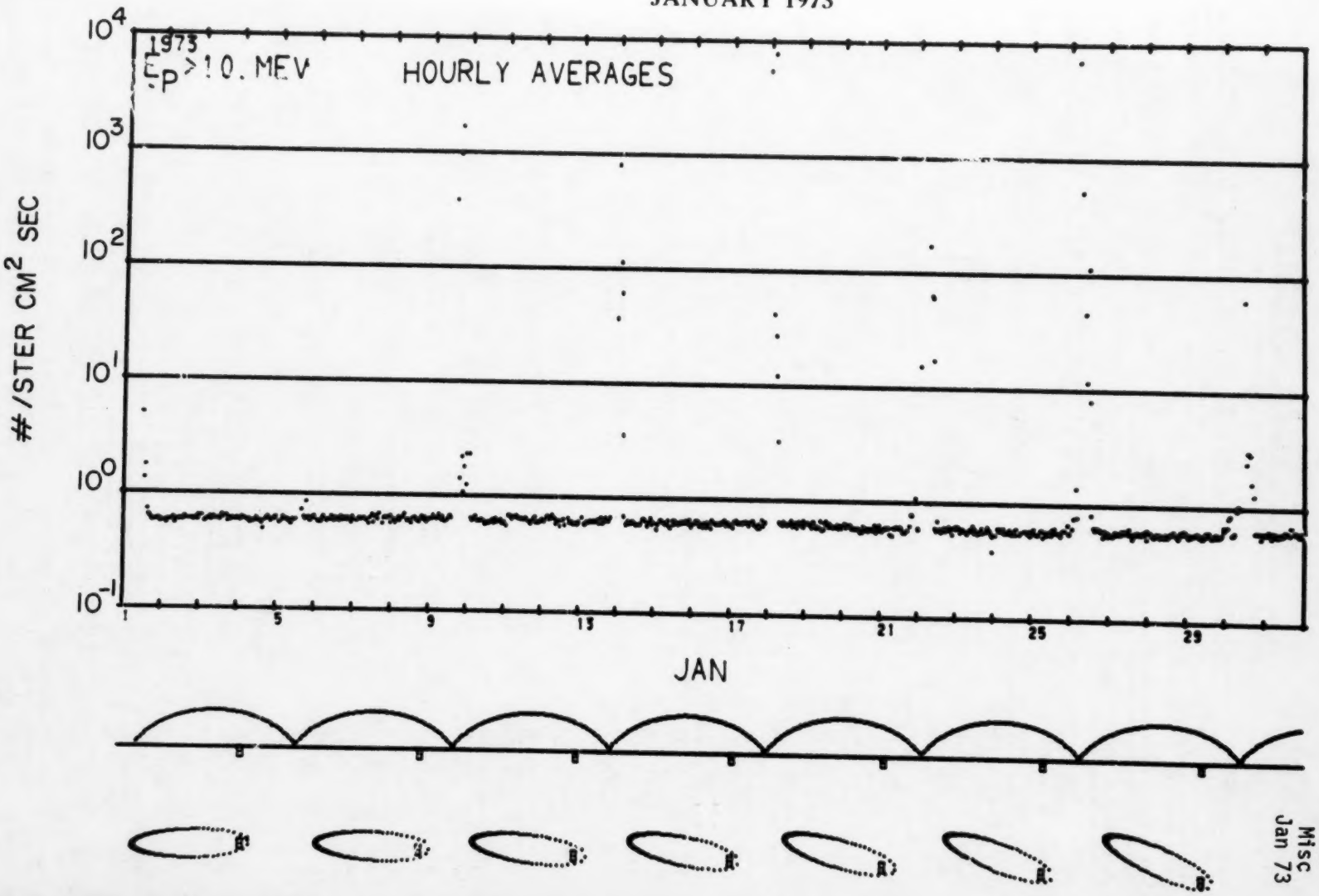

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